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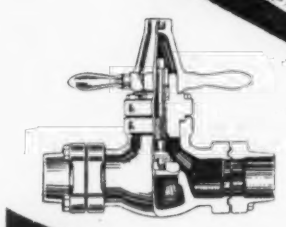

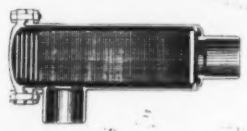
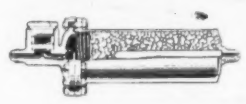

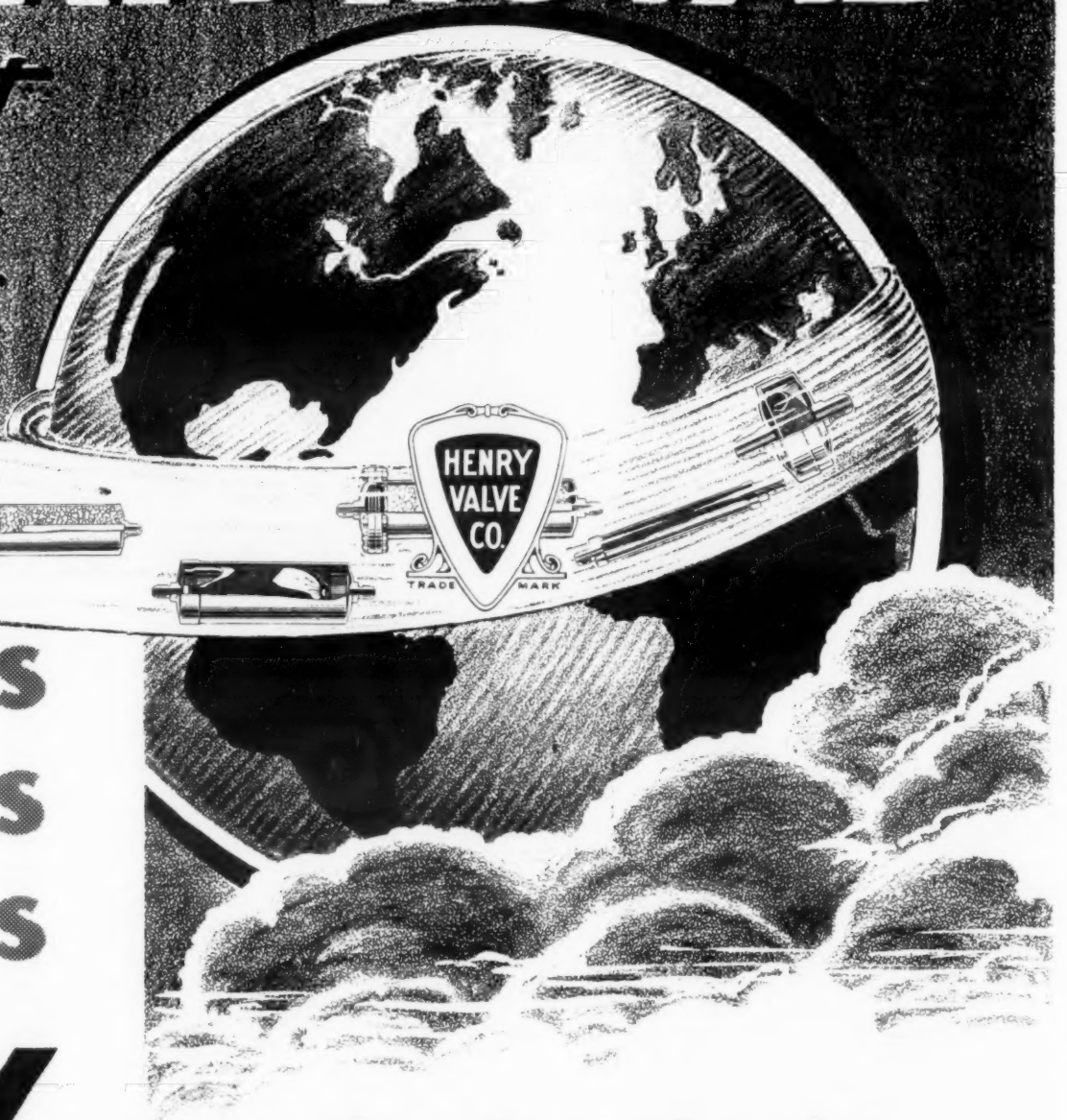

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Chicago, Ill.....Acme Supply Co.
Chicago, Ill.....Airo Supply Co.
Chicago, Ill.....Harry Alter Co.
Chicago, Ill..Automatic Htg. & Cooling Sup. Co.
Chicago, Ill.....H. W. Blythe Co.
Chicago, Ill.....Borg Warner Serv. Parts Co.
Chicago, Ill.....H. Channon Co.
Chicago, Ill.....Fred C. Kramer Co.
Charlotte, N. C.....Henry V. Dick & Co.
Cincinnati, O.....Merkel Bros. Co.
Cincinnati, O.....Williams & Co., Inc.
Cleveland, O.....Harry Alter Co.
Cleveland, O.....Refrigeration Supplies Distributor of Cleveland, Inc.
Cleveland, O.....Williams & Co., Inc.
Dallas, Tex.....Electromotive Co.
Davenport, Ia.....Republic Electric Co.
Dayton, O.....Allied Refrigeration Co.
Des Moines, Ia.....Iowa Radio Corp.
Detroit, Mich.....J. M. Oberc, Inc.
Detroit, Mich.. Borg Warner Service Parts Co.
Fort Wayne, Ind.....H. J. Schroeder Co.
Fort Worth, Tex...McKinley Refrig. Sup. Co.
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Houston, Tex...Walter Refrigeration Sup. Co.
Knoxville, Tenn.....Leinart Engineering Co.
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Kansas City, Mo.....Forslund Pump & Machinery Co.
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Madison, Wis.....Gustave A. Larson Co.
Memphis, Tenn...United Refrig. Supply Co.
Milwaukee, Wis...Chase Brass & Copper Co.
Milwaukee, Wis...Refrigeration Specialty Co.
Milwaukee, Wis.....Thermal Co., Inc.
Minneapolis, Minn.....Refrigeration & Industrial Sup. Co.
Minneapolis, Minn.....Vincent Brass & Copper Co.
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Portland, Ore.....Jerry Dimick Co.
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St. Louis, Mo.....Brass & Copper Sales Co.
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San Antonio, Tex.....Straus-Frank Co.
San Antonio, Tex.....Westbrook Carburetor Electrical Co.
San Diego, Cal...L. B. Marsh Allied Refrig.
South Bend, Ind.....F. H. Langsenkamp Co.
South Bend, Ind.....South Bend Supply Co.
Springfield, Mass.....C. P. Payson Co.
Springfield, Ill....United States Electric Co.
Syracuse, N. Y.....Syracuse Supply Co.
Syracuse, N. Y.....Syracuse Equipment Co.
Toledo, O...Heat & Power Engineering Co.
Tulsa, Okla....Machine Tool & Supply Co.
Washington, D. C...Refrigeration Supply Co.
Wilkes-Barre, Pa.....Radio Service Co.
Winnipeg, Man., Canada.....Winnipeg Refrigerator Parts
Worcester, Mass.....Standard Supply, Inc.

FACTORY REPRESENTATIVES

Atlanta, Ga.....C. H. Boyd
Dallas, Tex.....A. A. Ways
Detroit, Mich.....F. B. Riley
Kansas City, Mo.....O. A. Forslund
Los Angeles, Calif.....Pacific Scientific Corp.
New York, N. Y.....C. W. Hudzietz
Philadelphia, Pa.....A. H. Holcombe, Jr.
St. Louis, Mo.....R. H. Spangler
San Antonio, Texas.....E. G. Langhammer
San Francisco, Calif...Pacific Scientific Corp.
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EXPORT SALES REPRESENTATIVES

New York, N. Y.....Melchior, Armstrong, Dessau Co.
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Michigan Plans Study of Credit Selling Abuses

Murphy Names Commission; Judge Gillis Assails Instalment Practices

DETROIT—Further restrictions on instalment credit sales, particularly regarding unduly harsh or unfair practices employed by some credit institutions in dealing with defaulting purchasers, may follow Gov. Frank Murphy's move to set up a commission to study conditions and draft remedial legislation, and an attack by Common Pleas Court Judge Joseph A. Gillis on instalment selling abuses in the city of Detroit.

In announcing the appointment of a study commission to draft legislation to curb instalment credit sales and restrict repossession of articles on which payments have been defaulted, Gov. Murphy said that he had been considering the matter for some time.

"To what extent instalment credit sales may have contributed to the present recession, and to the depression of 1929, is not wholly clear, but in each instance, I am informed, there was a large increase in the volume of instalment credit paper just prior to the reaction," the governor said.

"In any case, a serious over-

(Concluded on Page 5, Column 2)

Frigidaire Instalments Can Be Paid at Western Union

NEW YORK CITY—Instalment payments on any Frigidaire appliances purchased on a time-payment basis through General Motors Acceptance Corp. now can be made at any of the 4,000 Western Union offices throughout the country at a cost of 7 cents per payment, under terms of a plan devised by N. C. Dezendorf, GMAC vice president.

After having been successfully

(Concluded on Page 5, Column 1)

Household Appliance Selling Problems To Be Aired at Dept. Store Meeting

NEW YORK CITY — Several speeches and at least two discussion sessions scheduled for the 27th annual convention of the National Retail Dry Goods Association, which is to be held at Hotel Pennsylvania here Jan. 31 to Feb. 4, will deal specifically with appliance merchandising, according to the program.

Closing session of the afternoon program of the merchandising division on Feb. 2 will be devoted to a discussion of how housewares, china, and glass departments can be tied in with major appliance operations to increase volume. The big problems in standardization also will be discussed.

On the following morning, an entire session, under the chairmanship of Herschel Lutes, divisional merchandise manager, J. L. Hudson Co., Detroit, will be devoted to the merchandising of electrical appliances. The program follows:

"Planned Campaign vs. Special Events—A Promotional Policy for Steady Progress"; "Will Private Brands Become an Increasing Factor in Department Store Merchandising of Major Appliances?" John J. Daley, Gimbel Bros., Philadelphia; "Can a Major Appliance Department Be Profitable in All Department Stores and Under What Conditions?" George Stevens, Allied Stores Corp., New York City.

"Getting Teamwork in the Production and Distribution of Major Appliances" will be discussed by Carl Snyder, manager, appliance sales, General Electric Co., Bridgeport, Conn.; R. C. Cosgrove, manager of household refrigeration sales, Westinghouse Electric & Mfg. Co., Mansfield; and Ralph Cameron, household appliance sales manager, Nash-Kelvinator Corp., Detroit.

To close the session, a "question box" discussion will be held.

Pleasantaire Shows 1938 Package Unit

NEW YORK CITY—First showing of the new model "B" Pleasantaire room coolers will be held in the Lexington hotel here this week during the International Heating and Ventilating Exposition. Richard F. Roper, Pleasantaire Corp. president, and R. G. Klemeyer, vice president and general sales manager, will be in charge of the display.

Fifteen refinements are claimed for the 1938 room coolers, as a result of suggestions made by the more than 200 dealers who handled the units during the 1937 season.

Emphasizing the necessity for specialty selling in the room cooler field, the company has kept its 1938 unit small and light—it weighs but 140 lbs.—and has mapped a sales program (outlined in last week's REFRIGERATION NEWS) calling for 100,000 demonstrations to prospects during the summer selling season.

The company is going after specialty dealers in all lines in an effort to get them started in the summer air-conditioning field. No exclusive franchises are being granted as yet.

Air-Conditioning Surveys In This Issue

Readers interested in keeping in step with the air-conditioning industry will find much of value in this issue of the NEWS.

On pages 15 to 23 are published surveys of air-conditioning installations made up to the end of 1937 in 63 of the country's principal centers of population. The charts show jobs installed in the individual territories up to the present time, by business classifications.

On page 24 is published a detailed list of the places in which air-conditioning systems were installed during 1937 in the Kansas City territory.

Results of a study of firms selling year-around air-conditioning equipment in Baltimore is published on page 8. Explanation of the survey and of data obtained is on page 9.

Milwaukee Promotion to Aid Dealer Sales

MILWAUKEE—A plan to stimulate local electrical appliance sales by presenting to the general public a series of monthly limerick contests with electrical appliances offered as prizes was announced Jan. 19 by Milwaukee Electric Co. to nearly 1,000 men and women, almost 100% attendance of the appliance trade.

The electric company reputedly will spend approximately $100,000 in advertising this contest.

The contest will start in February, when two electric washers will be offered as prizes. All monthly prizes will be purchased by the utility at

(Concluded on Page 5, Column 1)

'Ready-to-Install' Conditioners Dominate International Exhibit

Package-Type Equipment in Capacities up to 10 Tons Shows Industry's Moves to Eliminate High Labor & Installation Costs

NEW YORK CITY, Jan. 25, 1938—Striking at high labor and installation costs through prefabrication and unitized products, America's air-conditioning industry is making an impressive demonstration of its recent technological progress at the Fifth International Heating and Ventilating Exposition, which opened Monday at Grand Central Palace for a five-day stand.

Complete air-conditioning units of the "package" type are being displayed in sizes ranging up to 10 tons capacity. For office use a decided trend may be noticed toward self-contained air-cooled units which simply "plug in" to a convenient outlet.

Ease of installation and assembly has apparently been a prime consideration of designing engineers in recent months.

Formerly the big idea was simply to get a system that would work. Now the engineers are thinking about such practical problems as getting large machines through small doors, flexibility of capacity (so that an entire installation need not be thrown out in case of an error in estimating), and simplifying of service.

One of the contributing factors to the high cost of air conditioning has been inflated union labor charges in assembly and installation. Now, it would appear, these excessive charges are being combated by the unitization of equipment, and the designing of completely assembled factory-built systems which can be knocked down for shipment and reassembled at the point of installation with a minimum need of skilled labor.

Especial attention has been given to the evaporative condenser. Many new twists in design are being shown at the exposition, and practically all of the complete unit manufacturers are exhibiting their conception of the ideal evaporative condenser.

Topped by Baker's 60-ton Freon

(Concluded on Page 4, Column 1)

Cordiner Heads G-E Appliance Dept.

BRIDGEPORT, Conn. — Appointment of Ralph J. Cordiner as manager of the appliance and merchandise department of the General Electric Co., effective immediately, has been announced by Charles E. Wilson, executive vice president of the company.

As manager and as vice president in charge of appliance activities, Mr. Wilson was, until his recent election as executive vice president, actively in charge of this phase of General Electric's business.

(Concluded on Page 5, Column 1)

McLaughlin & Jordan Talk To Detroit ASRE

DETROIT—Talks by C. D. McLaughlin, commercial refrigeration specialist of Nash-Kelvinator Corp., and F. O. Jordan, consulting engineer of the NEWS and head of the consultation department of Refrigeration & Air Conditioning Institute, Chicago, featured last week's meeting of the Detroit Section of American Society of Refrigerating Engineers, held at the NEWS' offices. Fifty-five members and guests were present.

Mr. McLaughlin demonstrated the

(Concluded on Page 2, Column 5)

Dun & Bradstreet Conducts 'How's Business' Survey of Dealers to Determine Trends

NEW YORK CITY—In an effort to obtain a rapid but comprehensive picture of the trend of trade in all sections of the country, Dun & Bradstreet is asking "How's Business?" through a questionnaire being sent during January to a list of 2,000,000 manufacturers, wholesalers, jobbers, and retailers in all lines of industry.

By taking the mass pulse of American business in this manner, it is hoped to have available, within two months, a reliable report on current trade trends throughout the country.

The inquiry, known as the "Business Trend Survey," replaces the Retail Survey which Dun & Bradstreet has been conducting for the last four years, and which has been used to determine profitable operating averages for more than 100 retail trade classifications.

Figures obtained in the Business Trend Survey will first be published on a summary basis, but detailed regional and trade analysis will be made later. Questionnaire to be filled out is relatively simple. It asks for information in four specific categories, covering the three-year period of 1935, 1936, and 1937.

First question deals with annual sales volume, the second with inventory, the third with receivables, and the fourth with expenditures for additions and improvements. Through the last question, it is hoped to learn the attitude of business men toward permanent investment under present economic conditions.

Results of the survey, as they apply to the refrigeration, home appliance, and air-conditioning fields, will be published in AIR CONDITIONING & REFRIGERATION NEWS. Readers of the NEWS are urged to fill in and mail their questionnaires as quickly as possible, or to contact the nearest Dun & Bradstreet office in case their survey form has been lost or mislaid.

Sales Went 'Boom!' in the Fall, But Dealers On Cleveland's Broadway Aren't Quitting

By T. T. Quinn

CLEVELAND—Although the appliance business (along with just about every other type of business) took a nose-dive in the Cleveland territory during the last quarter of 1937, its fall wasn't enough to keep most dealers along Broadway, "main street" of the city's southeast section, from showing a favorable year compared to 1936.

Located about three miles from the city's downtown section, in a neighborhood dominated by citizens of Bohemian and Polish descent, Broadway's business district, not more than four miles long, supports—or at least has been supporting—some 55 stores handling major appliances and radios.

Customers come principally from the neighboring residential districts, populated largely by workers in the steel and other plants located in that area. Some dealers along the thoroughfare, however, claim customers from all over Cuyahoga county, while others say they do business with people from several outside-of-the-city points in northern Ohio.

A good share of Broadway's dealerships' business must come from somewhere besides the immediate neighborhood, for the appliance store line-up seems entirely out of proportion to the territory's population.

Dealers from this section of Cleveland led in the organization of the Cleveland Retail Appliance Dealers' Association, and most distributors agree that the Broadway concentrate is the "prime ribs," if not the backbone, of the city's neighborhood home appliance sales.

The business let-down hit most Broadway dealers rather early last fall—one dealer tagged his own slump definitely from Sept. 5, while the others said they had begun noticing the absence of prospects and sales early in October. Reports on 1937 business ranged all the way

(Concluded on Page 2, Column 1)

1938 Refrigeration & Air Conditioning Directory Gives Classified Listing of Manufacturers

Volume D-1 of the 1938 REFRIGERATION & AIR CONDITIONING DIRECTORY, composed of classified listings of manufacturers of refrigeration and air-conditioning products, is off the press and ready for distribution. It contains 252 pages bound in an attractive yellow, silver, and blue cover. Price is $1 per copy postpaid in the United States. If the Directory, or other books, are mailed outside the U. S. there is an extra charge of 50 cents on the entire order.

An entirely new compilation from start to finish, arrangement, classification of products, and selection of names used in Manual D-1 has been made from the viewpoint of the average buyer in the refrigeration and air-conditioning business. Only companies selling in the national market, and actually prepared to supply the products under which their names are listed, have been included in the volume.

Designed as an authentic guide for all buyers in the refrigeration and air-conditioning industry, including manufacturers, distributors and dealers, jobbers and service companies, the book is comprised of seven sections.

Section 1 is entitled "Air-Conditioning Systems and Equipment." Included as subdivisions, each followed by a list of companies manufacturing such equipment, are: all-year-around air-conditioning systems; summer air-conditioning systems; condensing units and heat transfer equipment; air moving, filtering, washing, and cooling equipment; insulation; grilles, registers, and shutters; controls, motors, and instruments; refrigerants, refrigerant valves, fittings, and tubing.

"Commercial Refrigeration and Equipment" is the title of Section 2, which is subdivided into commercial refrigerators and equipment; commercial refrigeration systems and equipment; dairy, ice cream, and soda fountain equipment; refrigerated truck bodies and equipment; drinking water and beverage cooling equipment; commercial refrigeration parts and equipment; motors and controls; refrigerant valves and fittings; controls, tools, and instruments; refrigerants.

The third section, "Household

(Concluded on Page 5, Column 1)

Dealers Along Cleveland's Broadway Report Sales Gains during 1937 Despite Fall Slump

(Concluded from Page 1, Column 5)

from an increase of 300% for one dealer and 75% for another to drops of 20% for a group of seven other dealers.

Appliance business among the 26 dealers interviewed, however, averaged a gain of 9.4% over 1936. This indicates that the territory suffered effects of the slump considerably more than did dealers in the city as a whole, for refrigerator sales in the Cleveland territory generally were up 15.7% over their 1936 mark.

Was the slump forcing any Broadway dealers out of business? Decidedly not. Rental space is still at a premium all along the street, and expansions, renovations, and new stores have been the recent vogue. For example:

F. J. Vyhnal Furniture Co., Smerda's Music House, Inc., M. Goodman & Co., Wanda Furniture Co., and Janda Electric Co. have enlarged and remodeled their business homes during the last year; J. L. Goodman Furniture Co. has completed a new warehouse and store front.

Stanley Furniture Co. has moved to new and larger quarters, The Electric Shop has opened a new branch store along Broadway, Hendricks Electric Co. has moved into a new location, with triple its former floor space; Harry F. Olrich has opened a new store in the territory; and N. Shkorka is one of the territory's new appliance dealers, entering the field late in the summer.

All in all, 10 dealers reported they made a profit in appliances in 1937, compared to 1936; 13 dealers said their 1937 business had fallen below that of the previous year; and three considered business during the two years to have been about equal.

Most dealers interviewed in the Broadway section had done replacement business during 1937, they reported. Only seven dealers said they hadn't taken in used mechanical refrigerators; and two of these admitted they had had chances to do so, but had either refused or been "out-traded" on the deal. One dealer reported his trade-in percentage ran as high as 20%, and another claimed 10% replacement business, but general tendency of the others was to set a figure somewhere between 1 and 4%.

A generally lukewarm feeling was evinced regarding earlier introduction of 1938 refrigerator models. None of the dealers surveyed thought it had been a definite help, and 11 said right out that they had noticed it was not a help. Fifteen others said the practice seemed a good idea, and that it might have worked to their advantage had it not been for generally poor Christmas business conditions in 1937.

As one dealer put it, "Nothing could have helped business this Christmas." Stores handling smaller appliances reported a brisk holiday demand for those items, but in general the tendency seemed to be to spend dimes instead of dollars. A majority of dealers said December business had been better than November's, but none of them thought it anything like it ordinarily should have been.

Electric ranges, aided by utility promotion and a more favorable electric rate, crept into the "active" appliance class during 1937, and six of the dealers surveyed reported taking on that item during the year, more on an "if coming" basis than anything else. A half dozen others had handled ranges previously, and said that 1937 had brought the first indications that the business might eventually be worth riding out.

THREE ADD NEW MAKES

Three dealers added another line of refrigerator, and only one of these had a definite reason for doing so—he said the line, one with a number of convenience features, was "hot" in his neighborhood during 1937.

One dealer, who reported almost tripled sales in 1937 compared to 1936, attributed most of his success to concentrating on a single refrigerator line. He said the "one-line" policy enabled his salesmen to "shoot the works" with every prospect they contacted, without the necessity of laying low until his first, second, or third preferences among the store's previous lines was ascertained.

Three dealers added home laundry equipment, principally to round out their appliance lines—and one dealer, previously an "appliance only" outlet, added furniture "to keep business more level the year around."

Attitude of the dealers toward canvassing is indicated by the fact that, of 26 firms interviewed, only 12 had outside crews of any type, and just seven of these reported that their men did cold canvassing. Store and user leads kept most outside men busy, dealers said.

DEALER ADVERTISING

Neighborhood newspapers and radio spot announcements and regular programs ranked highest in effectiveness during the year as far as business-pullers were concerned, dealers reported. Since the Broadway area is largely Polish in population, foreign language radio programs were especially effective, dealers said. However, these were probably too costly for all but the larger outlets. Only one or two used metropolitan newspapers regularly, although one dealer reported good results from classified advertisements in downtown papers on "specials."

Service is apparently left to the distributors, for only two dealers had refrigeration service departments, and these handled all makes. One or two others turned their used refrigerators over to independent service men for reconditioning, but left servicing — and installation — of new equipment to distributors' men. The general attitude seemed to be: "They know how to do the job better than we, so why should we concern ourselves with it?"

Longer warranty periods, too, seemed to have their effect in convincing the dealers that servicing, if there has to be any, is better handled by the distributor.

Detroit ASRE Hears Jordan & McLaughlin

(Concluded from Page 1, Column 4)

"rubber band" method which he uses in explaining to non-technical commercial refrigeration men the fundamentals of balancing the evaporator and condensing unit with the outside temperature in a commercial refrigeration system.

Mr. Jordan discussed the activities of RACI's new consultation department, purpose of which is to maintain a contact between students and the school similar to that existing between a teacher and his class in a resident school or college.

His talk was supplemented by slides showing the practical work performed by refrigeration and air-conditioning students in the RACI laboratories.

Affiliation with the Engineering Society of Detroit was decided upon at the meeting. Some 13 local engineering societies are now affiliated with the organization.

To advise and assist those interested in becoming A.S.R.E. members, a membership committee composed of K. M. Newcum, AIR CONDITIONING & REFRIGERATION NEWS; H. F. Hutzel, Nash-Kelvinator Corp.; Irving Knudsen, Detroit Lubricator Co.; and G. L. Philips, Giffels & Vallet, Inc., was appointed by Section Chairman F. M. Cockrell, who presided at the meeting.

What 26 Cleveland Dealers Experienced in 1937

1. Were dealers' unit sales volume in refrigerators during 1937 higher than that for 1936?

   Ten dealers said yes, 13 no, while three said there hadn't been any considerable amount of change. Average increase in sales for all the dealers reporting was 9.4%.

2. What percentage of sales entailed replacements of mechanical refrigerators?

   All but seven dealers reported they had done some replacement business during the year. 3.4% of total sales entailed replacements, according to averages taken from reports of 26 dealers.

3. Did the introduction of new models help Christmas business?

   None of the dealers thought early introduction of new models had been of definite help. Eleven said definitely that it had not been of assistance in their holiday business. Fifteen thought it would have helped, but for existing business conditions. Six of the dealers who voted the move as no help admitted they hadn't had floor samples in time to give it a fair trial.

4. Were sales relatively better in December than in November?

   Twelve dealers answered yes, eight said no, and six reported there hadn't been enough difference between the two months' business to notice.

5. What new lines of equipment did refrigerator dealers take on during the year? Why?

   Six dealers reported adding electric ranges, three added another refrigerator line, three took on laundry equipment, one adopted a "kitchen ensemble" outfit. Another dealer reported that he had dropped all other refrigerator lines to concentrate on a single make. One dealer added furniture to his appliance lines.

6. Do dealers still carry on outside selling? Cold canvassing?

   Twelve dealers answered yes, 14 said no. Of dealers answering yes, seven said they do cold canvassing. Most dealers said they had salesmen who followed store and user leads only. One dealer, while he employed no canvassing, nevertheless said he thought it a good idea.

7. What form of advertising or promotion did dealers find most effective during the past year?

   Nine dealers chose neighborhood newspapers, four voted for spot radio announcements, four for foreign language radio programs, usually on Sundays, two for metropolitan newspapers, one for shopping news. Other choices included advertising of specials in classified columns of metropolitan newspapers, direct-mail, and house-to-house handbills. All dealers using radio backed up their programs with either neighborhood or metropolitan newspaper advertising.

8. Do dealers maintain their own service department? For all makes?

   Only two dealers reported having a service department, and these handled work on all makes. The rest left the matter of servicing to their own individual distributors, presumably under the five-year guarantee. Three dealers who had no refrigeration service department did have radio service facilities.

9. Did dealers sell any kitchen ensembles or home laundry combinations during 1937?

   Only one dealer reported selling an all-electric kitchen, and this was installed on Dec. 30. Six dealers reported sales of washer-ironer combinations. Three of the six dealers reported a slight trend toward laundry combinations. Trend toward electric kitchens may come later, some dealers thought, after utility company promotion has carried the electric range more into the public eye.

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WITH THE LEADERS

Bonderizing is a known quality among buyers of domestic refrigerators, cooling cabinets, refrigerated display cases, washing machines and air conditioning equipment made so by long continued forceful, consistent advertising, and by its wide spread use by the acknowledged leaders in these industries. Bonderizing protects these products from the rust producing conditions under which they operate. It holds the finish and maintains finer appearance longer than is possible on the unprotected unit.

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The Distributor Who Sells the
Copeland REFRIGERATION LINE

IS BUILDING GOOD-WILL FOR YEARS TO COME!

It is just good business foresight to sell your customers a quality-built Copeland product. Whether you sell a Copeland Household Refrigerator, Commercial Refrigeration, Washer or Ironer, you are wisely building up a backlog of long-time customer satisfaction that will pay you dividends in continued patronage for many years.

Write for Sales Plan
COPELAND REFRIGERATION CORPORATION
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THE GREATEST CONVENIENCE STORY EVER TOLD

CROSLEY QUICK-RELEASE CUBE TRAY

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STORADRAWER

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TRAY RELEASE

SPOTLIGHT FEATURES

THIS MUCH MORE IN A SHELVADOR

None but the Shelvador electric refrigerator provides such an array of time and labor-saving features—features that spell CONVENIENCE to the housewife . . . that tell her convincingly "The Greatest Sales Story Ever Told"—THIS MUCH MORE IN A SHELVADOR . . . that will sell for you many more refrigerators than you've ever sold before.

THE GREATEST STORY EVER TOLD — THIS MUCH MORE IN A SHELVADOR — LOOK FOR THIS IDENTIFYING SYMBOL

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POWEL CROSLEY, Jr., *President*

Home of "*the Nation's Station*"—WLW—500,000 watts—70 on your dial

CROSLEY SHELVADOR

New Air-Conditioning Equipment Displayed At International Show in New York

(Concluded from Page 1, Column 5)

compressor, a number of unusually large condensing units were shown. Several manufacturers displayed 50-ton machines. Frequently these greater capacities were achieved through the medium of twin compressors.

Exhibits at Show

General Electric Co.

Air conditioners incorporating all the necessary requirements of year-around air conditioning, cooling, dehumidifying, heating, humidifying, filtering, and air movement, ranging in capacities from 17,600 B.t.u. cooling and 44,700 B.t.u. heating to 480,000 B.t.u. cooling to 960,000 B.t.u. heating capacity are displayed by General Electric Co.

Smallest of the conditioners is the new model HD-50 for basement installation in medium-size homes. Model HD-100, next largest size, is for larger homes and smaller commercial applications where all the functions are required.

Model LA-3, a 100,000 B.t.u. oil furnace, is being shown for the first time at this exposition.

A self-contained unit room cooler, model AF-1, which may be used either with an air or water-cooled condenser. When water is employed the air-cooled condenser is automatically connected with an evaporative condenser. No condensate drain is required, according to G-E engineers in attendance at the exhibit.

General Refrigeration Sales Corp.

On display at the Lipman booth was one of its new 10-ton self-contained air conditioners, which requires but 19 pounds of Freon-12.

The Lipman commercial type self-contained conditioners are made in 5, 7½, and 10-ton sizes. They are completely assembled and require only electric and water connections for operation.

To get the refrigerant charge below the minimum allowable number of pounds for installation in public buildings and other institutions where local codes have jurisdiction, Lipman engineers have eliminated the liquid receiver.

Liquid refrigerant is stored in the bottom of the double-tube condenser from which it is fed to the coils as required by the thermostatic expansion valves.

Carbondale Div., Worthington Pump & Machinery Corp.

To provide a cool and comfortable atmosphere for visitors at its third floor booth at the exposition, Carbondale Div. of Worthington Pump & Machinery Corp. has a 10-ton condensing unit connected and operating two 5-ton floor-type unitary conditioners.

Curtis Refrigerating Machine Co.

Shown for the first time is the Curtis Refrigerating Machine Co.'s new 50-ton V-type Freon-12 compressor and its new cleanable-type evaporative condenser.

The new line of large size compressors is offered in three sizes for 30, 40, and 50 tons of refrigeration when used for air conditioning. The compressor has forced-feed lubrication to the bearings and seal, an automatic unloader and Timken roller bearings.

The evaporative condenser is of the cleanable type. The tubes, inside of which water evaporation takes place, are accessible for cleaning by lifting the head and fan assembly from the condenser.

The condenser is a vertical steel shell through which copper (or steel for ammonia) tubes are interposed and formed into gas-tight joints at the top and bottom header. Both ends of the tubes are open.

The tubes extend up above the header plate and water from this chamber overflows and trickles down the inside walls of the tubes. Air is drawn up through these same tubes by means of a turbine-type fan located on top of the assembly.

The air stream tends to hold the water in suspension, promoting rapid evaporation, hence cooling the refrigerant gas and liquid which is in contact with the tubes inside of the shell.

Water which is not evaporated drains down into a suspended drain pan. When a sufficient amount of water has accumulated the weight of the water operates a small pump which carries the water back up to the top of the condenser. Make-up water regulation is also controlled by the action of the pan.

Bush Mfg. Co.

Bush Mfg. Co. recently completed the fabrication of a 60-ton direct-expansion air-conditioning coil.

Production was speeded up to enable this large coil to be displayed by the manufacturer at its booth.

Brief reviews of products shown by other companies appear below. More product data will appear next week.

Kelvinator Division, Nash-Kelvinator Corp.
Cutaway model house, showing model air-conditioning installation.
Room-cooling units.
10-hp. Freon compressor.
Evaporative condenser.

Dayton Rubber Mfg. Co.
Belts and drives.

Penn Electric Switch Co.
Controls.

Air Devices Co.
Unit heaters and coolers.

Joliet Heating Corp.
Winter air-conditioning equipment.

Sangamo Electric Co.
Switches and controls.

W. A. Russell & Co.
Valves.

Frick Co.
30-ton 6-cylinder Freon compressor.
Evaporative condenser—all primary cooling surface, no fins.
Purger for removing air and other non-condensible gases without loss of refrigerant.

Delco-Frigidaire Conditioning Corp.
10-hp. condensing unit.
Suspended-type air-conditioning unit designed for above-doorway installation in stores.
Multipath evaporator for central ductwork. Room coolers.
Delco oil burner, gas furnace, Conditionair with cooling.

Johnson Service Co.
Controls.

National Radiator Co.
Winter air-conditioning equipment.

Airtemp, Inc.
40-hp. radial condensing unit.
Summer air-conditioning units.
Oil and gas-fired burners.

Ilg Electric Ventilating Co.
Motors and blowers.

Bryant Heater Co.
Gas-fired winter conditioning units.
Boilers and forced-air heaters.
Silica gel dehumidifiers.

Fairbanks, Morse & Co.
Self-contained air-cooled room cooler. Also as water-cooled model.
Gas-driven Freon condensing unit.
15-hp. motor Freon condensing unit.

Minneapolis-Honeywell Regulator Co.
Controls.

Modine Mfg. Co.
Unit coolers, cooling coils.
Recessed convector.

Westinghouse Electric & Mfg. Co.
Precipitation air cleaner.
Mobilaire air-cooled air-conditioning units, evaporative condenser.
Controls, motors, drives.

Fulton Sylphon Co.
Controls, modulating damper motor.

Lau Blower Co.
Blower units.

Century Engineering Corp.
Winter air-conditioning equipment.

Alco Valve Co.
Valves.
Glass demonstration evaporator.

Gar Wood Industries, Inc.
Oil-fired furnaces.
Winter air-conditioning equipment.

Young Radiator Co.
Unit heaters, convectors.
Complete air-conditioning units.

Pennsylvania Anthracite Association
Stoker equipment exhibit.

Barber-Colman Co.
Controls, air-distribution outlets.

Aerofin Corp.
Cooling coils, condensers.

Carrier Corp.
Heat diffusing unit, cold diffuser.
Silica gel dehydrator.
Evaporative condenser.
Carrier-Brunswick 20-ton Freon compressor.
1½-ton methyl chloride compressor.
Portable room cooler, complete.
Slotted and adjustable outlets.

Ingersoll-Rand
5-hp. compressor.
Cameron motor pump for air-conditioning service.

Celotex Corp.
Insulation.

A. F. Henricksen, Inc.
Radi-Ion oxygen activation equipment, Davidson roof fans.

Staynew Filter Corp.
Air filters.

Spoehrer-Lange Co.
Valves.

Detroit Air Meter Co.
Draft gauges, grillometers.

Rome-Turney Radiator Co.
Condensers, cooling coils.
Venetian grilles.

Baldwin-Hill Co.
Insulation.

Utica Radiator Corp.
Washed-air conditioning units.

Gilbert & Barker Mfg. Co.
Winter air-conditioning equipment.

J. H. H. Voss Co.
Compressor valves.

Viking Air Conditioning Corp.
Attic fans.

York Ice Machinery Corp.
10-hp. compressor, oil-burning boiler.
Yorkaire unit coolers.
Indoor cooling tower (evaporative condenser).

American Brass Co.
Copper tubing and fittings.

Fitzgibbons Boiler Co.
Split systems and direct-fired winter air-conditioning equipment. A unit also shown with cooling coils.

Timken Silent Automatic
Winter air-conditioning equipment.

York Oil Burner Co.
Winter air-conditioning equipment.

Hoffman Specialty Co.
Valves.

United States Register Co.
Winter air-conditioning equipment.

C. J. Mueller Furnace Co.
Gas-fired winter air conditioning.

Vilter Mfg. Co.
Freon-12 condensing units, including cutaway model.

L. J. Wenz Mfg. Co.
Fans, exhausts, blowers.

Allis-Chalmers Mfg. Co.
Motors, 2-hp. rotary compressor.

United States Air Conditioning Corp.
Midget Kooler-aire, evaporative cooling unit using tap water, and providing cooling, dehumidification. Portable room cooler which recirculates water, using no compressor. Dual deflector to control air flow.

Automatic Products Co.
Valves.

Imperial Brass Mfg. Co.
Valves, tools, and fittings.

C. A. Dunham Co.
Radiators and controls.

Bell & Gossett Co.
Controls.

Buffalo Forge Co.
Evaporative condensers.
Blower and exhaust fans.
Gas unit heaters.
Central air-conditioning cabinet.

Baker Ice Machine Co.
Compressors, including a 60-ton Freon unit.

Julien P. Friez & Sons, Inc.
Instruments and controls.

Williams Oil-O-Matic Heating Corp.
Oil burners.

Fedders Mfg. Co.
Evaporators, fans, and blower units.

Baldor Electric Co.
Motors.

Airtherm Mfg. Co.
Unit heaters.

Emerson Electric Mfg. Co.
Fans and motors.

Hotstream Heater Co.
Draft-O-Stat controlled draft.

Henry Furnace & Foundry Co.
Winter air-conditioning equipment.

Torrington Mfg. Co.
Blower wheels, propeller fans.

American Radiator & Standard Sanitary Corp.
Sunbeam "air-conditioning" units.
Fox Furnace Co., winter air-conditioning units.
American Gas Products, winter air-conditioning units.
American Blower Corp., fans and ductwork.
Arco winter conditioning equipment, featuring a split system.
Boiler-burner units.
Detroit Lubricator Co., controls.

Perfex Corp.
Thermostat and pressure controls.
Twin clock and thermostats.

Mueller Brass Co.
Driers, heat exchangers, fittings.

Mercoid Corp.
Stoker and oil burner controls.

Autovent Fan & Blower Co.
Unit heaters and exhaust fans.

American Register Co.
Air registers.

Reynolds Corp.
Prefabricated ducts.

American Air Filter Co., Inc.
Self-cleaning air filters, "Airmat" arrester using filter paper.

Independent Air Filter Co.
Self-cleaning and renewable filters.

Rega Mfg. Co.
Humidifiers.

Maurey Mfg. Co.
Double-groove adjustable pulleys.

Johns-Manville
Insulated ducts.

Binks Mfg. Co.
Cooling towers, spray nozzles.

Henry Valve Co.
Line and pressure relief valves, scale traps, dehydrators.

The Philip Corey Co.
Asbestos air-conditioning ducts.

Owens-Illinois Glass Co.
Air filters, blanket insulation.

FREON REFRIGERATION COMPRESSORS

Some people call this THE Freon Compressor motor — because it WILL *start, accelerate* and *pull the load,* even when subjected to the severe starting and varying operating conditions which we know from broad experience are often present in any Air Conditioning installation.

It is planned with the necessary torque characteristics which are demanded in a motor that must drive the most efficient refrigeration compressors designed by the country's leading Air Conditioning Engineers... As a result thousands of these motors — in all standard horse power ratings—are widely used to power all kinds of equipment which come under the broad classification of Air Conditioning.

Available in sizes 1/6 to 300 horse power, Single, 3-Phase and Direct Current, Conventional Open and Hermetically Sealed-in Types.

Convince yourself of the value of these Century Motors — test them on any harder-to-start job and see how they start and pull the load up and over the hill quietly and without evidence of strain.

Write our General Office for further particulars or call one of our convenient branch offices, located in principal cities.

Century MOTORS

CENTURY ELECTRIC COMPANY
1806 Pine Street • • • St. Louis, Mo.
Offices and Stock Points in Principal Cities

KEROTEST
Valves and Fittings
The Standard of the Industry
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USE DRIERITE FOR DRYING
Anhydrous Calcium Sulfate
Air
Refrigerants
Industrial Gases
Write for Literature and Quotations
W. A. HAMMOND, YELLOW SPRINGS, OHIO

1938 Refrigeration & Air Conditioning Directory Issued

(Concluded from Page 1, Column 4)

Refrigeration and Equipment," is made up of the following subtitles: household refrigerators, cabinets, and equipment; household refrigerator accessories; evaporators, refrigerant and temperature controls, and equipment; condensing units and equipment; refrigerants.

Section 4, "Parts, Materials, Supplies, and Accessories," contains lists of manufacturers of: cabinet materials, insulating and sound deadening materials; condensing unit parts and accessories; evaporator parts and accessories; testing instruments; service, shop, and installation tools and equipment; electric motors, parts, and controls; temperature, pressure, and humidity controls and parts; refrigerant control valves; refrigerants, lubricating oils, and chemicals; tubing and pipe; materials, raw and fabricated.

Refrigeration and air-conditioning supply jobbers; refrigeration and air-conditioning schools; foreign manufacturers; associations, attorneys, testing and financial service, all are listed in Section 5, titled "Jobbers, Schools, Foreign Manufacturers, Etc."

Sixth section is an alphabetic index, including street addresses, of the names of all manufacturers listed in the classified section of the directory.

Last section of the book contains an alphabetic index of classified products, with complete cross references.

Cordiner Heads Appliance Activities for G-E

(Concluded from Page 1, Column 4)

Mr. Cordiner has served as assistant manager of the department since December, 1936. In his new position, he will be responsible for the company's entire appliance and merchandise operation, which includes four major divisions—specialty appliances, household appliances, radio, and construction materials.

Specialty appliance division, which covers refrigerators, ranges, water heaters, disposalls, dishwashers, electric sinks, and unit kitchens, is located in Cleveland. The other three divisions are located in Bridgeport, where Mr. Cordiner will have his headquarters.

Household appliance division includes laundry equipment, heating devices, clocks, cleaners, and fans; radio division includes radio receivers and inter-office communication systems; and the construction materials division includes wiring devices and products, cable and conduit, automotive products, and accessory equipment.

Frigidaire Users Can Pay At Western Union

(Concluded from Page 1, Column 1)

tested for the past six months in the metropolitan New York area, the plan is now in effect on all General Motors products, Mr. Dezendorf said.

The plan is intended as a convenience and economy for those purchasers who do not have checking accounts, and who have been making their payments by money order at a cost of 13 to 18 cents per payment.

Milwaukee Dealers Plan Cooperative Drive

(Concluded from Page 1, Column 3)

all list price from dealers participating in the plan.

The contest will be promoted in all daily, weekly, and foreign language papers published in Milwaukee county, as well as over the city's three radio stations. An extensive billboard campaign, in which dealers will be allowed to participate at a nominal cost, also will be used.

Promotion for the meeting at which the plan was announced was handled by Frank W. Greusel, president of Wisconsin Radio, Refrigeration & Appliance Association. Four separate notices, two of them illustrated and one in the form of an enlarged Western Union message, were sent to more than 400 members of the trade.

Probe of Michigan Credit Sales Evils Ordered by Murphy

(Concluded from Page 1, Column 1)

extension or weakening of the commercial credit base, if it does not produce a reaction, may intensify or prolong it, and thereby add to difficulties of government, increase uncertainties of business, and threaten security of our political and economic institutions.

"There are other attendant evils, such as arbitrary and wholesale repossession of articles already sold and in daily use, often accompanied by loss of substantial investment of hard-earned wages, and followed frequently by judgment for an unpaid balance on the article repossessed.

"Abuse of the garnishment process, foreclosure procedure, and other remedies is common. These practices in turn provoke widespread public bitterness and discontent.

"By imposing wholesome restrictions on legal remedies available to vendors and purchasers of commercial paper, the state government might stabilize and improve conditions within its own jurisdiction, and play an effective part in meeting a problem that is national in scope and importance," the governor concluded.

Named to Gov. Murphy's commission, in addition to Judge Gillis of Detroit, were: Clare Griffin, dean of the college of business administration, University of Michigan; Samuel B. Ostrow, chief assistant attorney general; Edward G. Kemp, the governor's legal adviser; Henry Wineman, People's Outfitting Co.; Louis C. Miriani, director of the Detroit legal aid bureau; and Marvin L. Niehuss of the University of Michigan law school.

GILLIS ASSAILS 'RACKETS'

In striking out against fake garnishments and other abuses which have crept into the instalment selling field in Detroit, as evidenced by cases he hears in "poor man's court," as the conciliation division, over which he presides, is called, Judge Gillis made it clear that he was not criticizing instalment sales as a general business practice.

Cases heard in his court, he said, indicated racketeering among certain types of credit houses which should be curbed. Remedial legislation, which would place used car dealers and credit houses under rigid inspection, and provide for loss of license for violations, would do much to correct many present instalment selling abuses, he added.

Ever since the conciliation division began its work, and the fraud practiced by some used car dealers and finance companies became apparent to him, Judge Gillis said he has been trying, without success, to get the state legislature to pass a bill providing some sort of regulation.

CITES 'GYP' METHODS

"The purchaser's ability to pay," said Judge Gillis, "never bothers a certain type of used car dealer. With him it's merely a matter of getting the purchaser's signature on one of the tricky contracts that have been prepared. The same is true of some racketeering jewelry houses, household appliance stores, and radio stores."

Reviewing the practice of some unscrupulous credit houses in buying back their own merchandise, through friends, at phony public auctions of repossessed goods, while at the same time continuing to collect from the purchaser, Judge Gillis said that, not knowing all the facts in every case, and having no means of ascertaining them, the courts are handicapped in trying to protect the rights of defendants.

COURT HANDICAPPED

In many of these instances, he continued, the person whose goods have been repossessed disregards the finance company's suit for a deficiency judgment, believing that, since the company took the car, the deal is square all around. Next thing the defendant knows is when a constable comes out to levy execution against some other property he owns, to satisfy a default judgment obtained by the finance company when he failed to appear in court to contest the action.

By the time the cases come before him, the damage has been done, Judge Gillis said. The defendant hasn't enough money to afford appealing the case, so he makes arrangements with the court to pay off the judgment. The court's hands are tied, and it can do nothing but enforce payment.

SHORTER CAR TERMS SOUGHT

Executives of the Ford, General Motors, Chrysler, and Packard automobile plants, in a conference with President Roosevelt in Washington last week, expressed willingness to eliminate the 24-month credit period on cars, and restrict buyers to a top of 18 months, U. S. Senator Prentiss M. Brown of Michigan said.

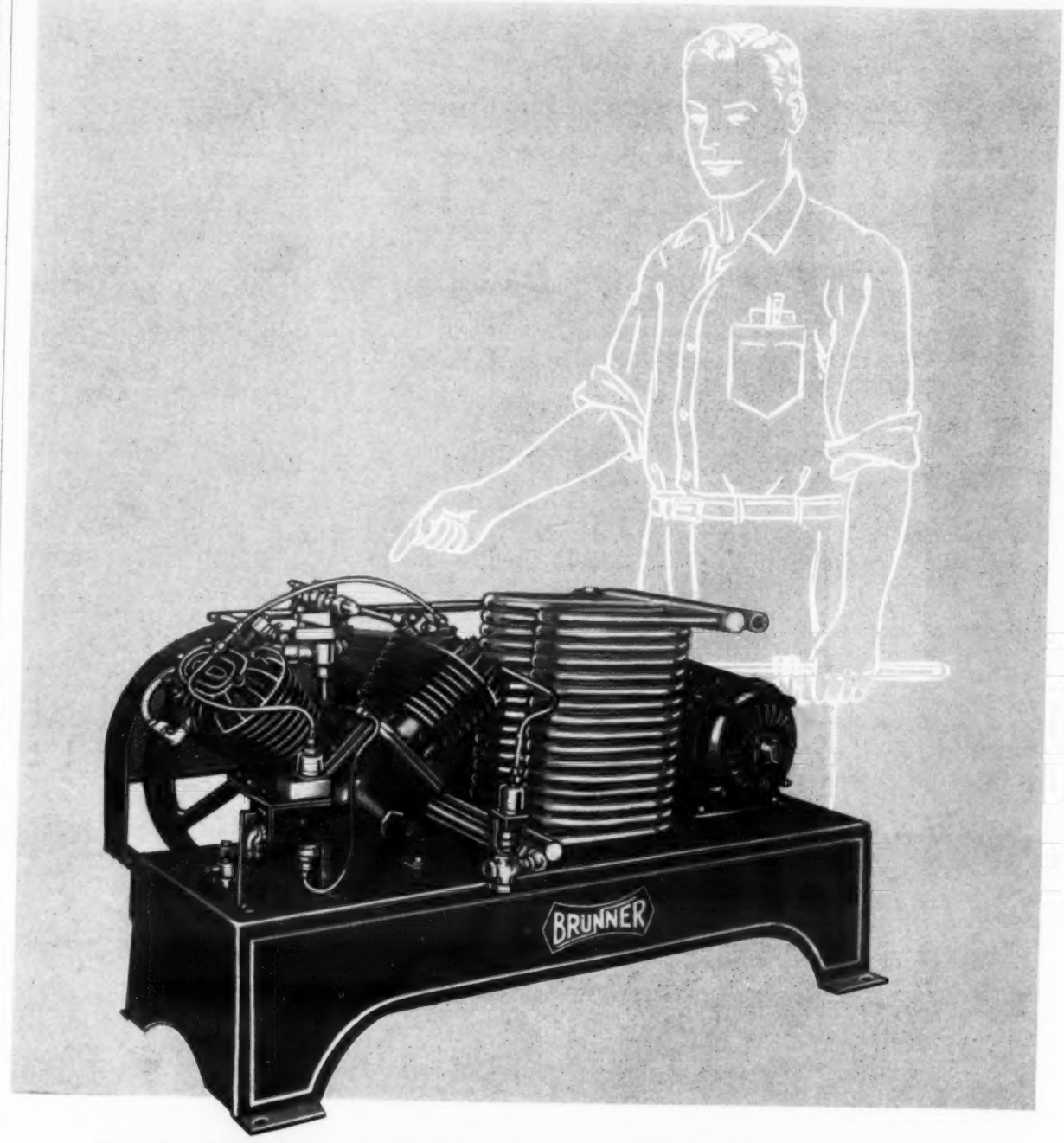
Sentiment also was expressed in favor of boosting down payments from 25% to 40%, to reduce the drain on the credit buyer's income. Executives of Ford, General Motors, and Chrysler finance company affiliates, and of independent finance companies, concurred in a statement after the meeting with the President condemning "high pressure" selling.

Elimination of sharp restriction of the use of deficiency judgments in repossessing cars also may be agreed upon by the auto finance companies, according to Senator Brown, who helped arrange the conference.

PONTIAC PROSECUTOR ACTS

In Pontiac, Mich., Prosecutor Franklin Morris announced that he would prosecute any finance companies using illegal tactics in repossessing automobiles and household furnishings sold on the instalment plan. He said he would start checking immediately to determine what methods companies were using.

Finance companies have been repossessing at least four cars a day in Pontiac, and reports show that about the same number are being taken back daily in the rest of Oakland county.



CONTROL VALVES CONVENIENTLY

"BUNCHED"

FOR QUICK, EASY ADJUSTMENT

No neck-craning necessary when you adjust the control valves on a Brunner! There they are "out in the open" where they can be readily seen and worked on . . . Another convenience on the new Brunner Condensing Units is the motor take-up arrangement, making this occasional adjustment very simple—a matter of seconds . . . From every angle—convenience, dependability and economy —Brunner refrigerating equipment is a wise choice for exacting commercial applications. With a wide range of units, air and water cooled, designed for any of the commonly used refrigerants, there's a Brunner Condensing Unit for practically every installation up to 15 tons of refrigeration. Get the detailed Brunner story . . . see what Brunner engineering and advanced manufacturing and testing methods have done to put mechanical refrigeration on an eminently *dependable* basis. Write: Brunner Manufacturing Company, Utica, N.Y., U. S. A.

IT'S BRUNNER FOR *economical* SERVICE

Commercial Refrigeration

Blackett to Manage Central District For Schaefer

TOM BLACKETT

* * *

MINNEAPOLIS — Tom Blackett has been appointed district manager in the Michigan and Ohio territory for Harold L. Schaefer, Inc., manufacturer of ice cream cabinets and soda fountains.

Mr. Blackett, who has had considerable experience in the sale of store equipment, ice cream cabinets, and mechanical refrigeration in this territory, has announced that new offices and showrooms will be ready by Feb. 1.

Edward Raker to Direct Sales Promotion for Fogel Cases

PHILADELPHIA—Appointment of Edward R. Raker as advertising and sales promotion manager of Fogel Refrigerator Co. has been announced by William Fogel, president.

Mr. Raker, a native Philadelphian, is 28 years old, and a graduate of Temple university and the Mulvey Institute of Advertising and Journalism here. Prior to joining Fogel, he was associated with the Al Paul Lefton Co., Philadelphia advertising agency.

G-E Extending Line Of 'Deck-Mounted' Farm Milk Coolers

CLEVELAND—A full line of completely self-contained milk coolers, equipped with deck-mounted General Electric "Scotch Giant" refrigerating units, has been announced for 1938 by Harold T. Hulett, manager of the commercial refrigeration section of the specialty appliance sales division of General Electric Co.

While last year the prospect's choice of self-contained milk coolers equipped with G-E refrigeration was limited to a few sizes, this year's line ranges from 2-can to 10-can sizes in wet storage models, and covers 4-can and 6-can sizes in dry storage models, Mr. Hulett said.

In addition to this self-contained line, milk cooling equipment designed for remote installation of the G-E compressor is available in any size that might be required, he added.

G-E's commercial section also has prepared a helpful new booklet for farmers and dairymen, which presents facts about proper cooling of milk and cream, and in which features of the milk cooling cabinets and of the G-E refrigerating units are explained in detail.

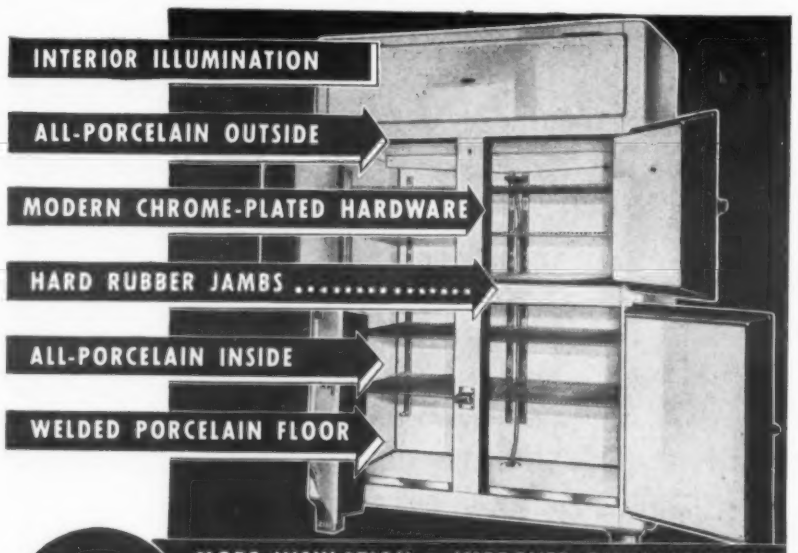
Described in the booklet, in addition to self-contained coolers, are G-E's walk-in coolers for bulk milk, meat, fruit, vegetable, egg, poultry, or general storage, available in a complete range of sizes to meet all requirements.

Cutler-Hammer Forms Canadian Subsidiary

MILWAUKEE—As part of its foreign trade activities, Cutler-Hammer, Inc., controls manufacturer, has announced formation of a company known as Canadian Cutler-Hammer, Ltd., for the purpose of manufacturing motor and generator control products for the Canadian market.

The company will be a subsidiary of the Amalgamated Electric Corp., Ltd., which will provide the manufacturing facilities.

Northern Electric Co. of Canada, for several years Cutler-Hammer's principal distributor in Canada, will act as distributor.



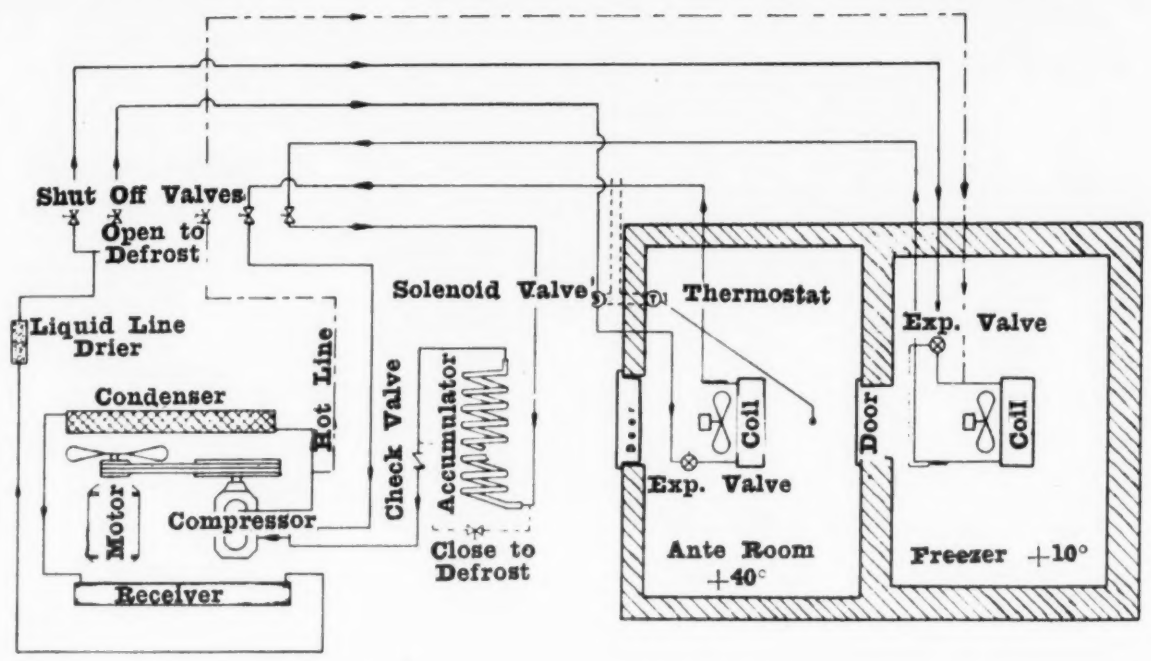
Hill *for those* WHO WANT THE *BEST*

Hard commercial use in hot kitchens makes the *best* Reach-in Refrigerator the most economical—the least costly to operate, the longest lived, and the most convenient. That is why **Hill** Reach-in Refrigerators are *easier* to sell to hotels, restaurants, hospitals, institutions and bakeries.

• Send for 32-page illustrated catalog, using your business letterhead. 168

HILL PRODUCTS DIVISION
C. V. HILL & CO., INC., TRENTON, N. J.

Hookup for a Unique Fish Storage Installation



* * *

Servel Forced-Draft Units Used in One System to Keep Rooms at 10° & 40°F.

SAN FRANCISCO—An out-of-the-ordinary application of Servel electric refrigeration was made recently by the Henshaw Refrigeration & Fixture Co., distributor in the San Francisco territory, in an installation especially designed for the storage of dry and salt fish, packed in boxes.

A large refrigerator, with two compartments, houses what is known as the freezer room and the ante-room. The freezer room measures 13 x 9 x 10 feet outside, and the ante-room 10 x 9 x 10 feet outside. The two compartments are connected by a door.

Capacity of the freezer compartment is approximately 10,000 lbs. of boxed fish; however, not more than 2,000 lbs. of the product are placed in the compartment in any one day. Entering temperature of the product is about 20° F.

ANTE-ROOM CONSTRUCTION

Capacity of the ante-room is about 6,000 lbs. of fish, but not more than 1,000 lbs. is brought into the room in any one day. The fish enter this room at a temperature of about 60° F.

Freezer has 8 inches of insulation in all walls, floor, and ceiling, while insulation in the ante-room is about 4 inches thick. Both are finished with lumber, inside and out.

Temperature of the freezer room is held at about 10° F., while that of the ante-room is kept at about 40° F.

Unusual feature of the installation is that both rooms are cooled by Humidraft forced-draft cooling units through utilization of a special type of hot gas defrosting hookup.

Refrigeration equipment used in the installation includes a Servel Model E-200 standard air-cooled machine unit, with a Humidraft suspended from the ceiling in the freezer, and a similar unit installed in the ante-room.

Chilling unit fans operate continuously, and each is electrically connected through a three-speed rheostat to run at approximately full speed, 65%, and 35%.

USE OF 'ACCUMULATOR'

Interesting part of the installation is a specially designed coil, known as an "accumulator." This consists of about 30 feet of ½-inch pipe, wound spirally to a 6-inch diameter. This coil is galvanized on the outside, and is used as an "evaporator" in the defrosting phase of the system.

Inserted in the line from the compressor head to the condenser is a ⅝ x ⅝ x ⅜-inch tee. From the ⅜-inch connection, through a shut-off valve, a line of ⅜-inch tubing runs to a tee placed between the outlet of the expansion valve and the inlet of the chilling room, located in the freezer room. This line of tubing is called the "hot line."

In operation, when it is found necessary to defrost the chilling unit in the freezer, the fan is disconnected, and the "hot line" shut-off valve, normally closed, is opened. This allows the hot gas from the compressor to enter the coil by way of the "hot line." The expansion valve closes, acting as a check valve. The hot gas then warms the chilling unit, and defrosting is accomplished in about 30 minutes.

The vaporized methyl chloride, which becomes condensed in the defrosting operation, returns to the machine unit through the suction line. In its liquid or semi-liquid state, however, it is necessary first to direct it through the "accumulator."

HOW IT'S DONE

This is done by connecting the suction line to the bottom of the vertical coil, which is located outside the refrigerator near the machine unit. In this way, the liquid in the line will be vaporized by the "accumulator" before it reaches the compressor.

A check valve is located in the suction line to prevent gas in the high temperature coil from entering the low temperature coil. A room thermostat and liquid line solenoid valve are set to hold the ante-room temperature at 40° F., to prevent frosting of the chilling unit in this compartment.

DEFROST ONCE A WEEK

With the type of product now being stored, it is necessary to defrost the system about once a week, says A. Henshaw, head of the company which designed and sold the installation. Temperature in the freezer room will not change more than 2° F. during the defrosting period, tests show.

Defrosting operation of the system has been designed for manual control, but Mr. Henshaw believes it can be made entirely automatic.

Instead of the manually controlled shut-off valve in the "hot line," a solenoid valve could be installed and connected to an electric time switch, he says. This switch could be set to open the solenoid valve and stop the fan, and close the valve and start the fan, at pre-determined intervals.

It is believed that this would be necessary if a moist product were being stored in the compartments. Servel factory engineers also have suggested addition of a manual by-pass around the "accumulator." This valve, if opened once a day, would insure return to the compressor of any excess oil that might tend to accumulate in the vaporizer coil.

Refrigerating System Keeps Frogs 'Right' For Experiments

BALTIMORE—Commercial refrigerating equipment used to keep live frogs at a constant temperature for Digitalis drug tests in the school of pharmacy at the University of Maryland has been installed by the local branch of General Electric Supply Corp.

The installation was made for Marvin R. Thompson, Ph. D., professor of pharmacy at the university, under the supervision of H. H. Zimmerman, manager of the branch.

"The apparatus," said Dr. Thompson, "is designed to permit proper use of live frogs for the physiological standardization of drugs of the Digitalis series. In this standardization procedure, it is necessary to use the frogs at a temperature which does not vary more than 1° C. during a 20-hour period.

"Any temperature change of a greater magnitude influences the metabolic rate and resistance of the test objects so that the experimental results will not be uniform, The refrigerating equipment accomplishes this purpose in a thoroughly dependable manner."

Digitalis, which is processed from the leaves of purple foxglove, is, with its related drugs, of extreme importance in the medical treatment of certain human heart disorders, Dr. Thompson stated.

The refrigerating equipment is used to keep the water in the tanks which house the frogs at a specified temperature. The tanks themselves are similar in size and shape to ordinary cabinets used for cooling bottle beverages.

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Air Conditioning

Derr Explains Use of Activated Alumina in Controlling Moisture Content of Air

PHILADELPHIA—Control of the moisture content of air by the use of activated alumina was discussed by R. B. Derr of the Aluminum Co. of America's research laboratories at a recent divisional meeting of the American Chemical Society at the University of Pennsylvania.

Mr. Derr told the society's division of Industrial and Engineering chemistry that the demand for an economical method of removing water from air had come from industry, and that the application of "absorbent dehumidification" was beyond the experimental stage.

NATURE OF SUBSTANCE

In describing the use of activated alumina Mr. Derr reported that "this material is a granular, porous, and inert solid which is capable of seizing substantially 100% of the moisture from a gas passed through it, until it has taken up 12 to 14% of its weight in water.

"After use the absorbed water is removed by heating and, on cooling, is again ready for use. Thus, in suitable equipment it is employed to produce air which will not deposit moisture at temperatures as low as 100° F. below zero. Any intermediate moisture content may be obtained as desired."

Large commercial units capable of removing 15,000 lbs. of water per day are now in use, Mr. Derr said. These units are being employed for controlling the atmosphere where candy, pharmaceuticals, chemicals, leather, paper, glass, and lacquers are being dried, packaged, or stored.

Air drying by lithium chloride solutions was discussed by F. R. Bichowsky, consulting engineer for the Dow Chemical Co., who said that drying efficiencies of 100% could be obtained by this process, compared to efficiencies of 10% to 30% obtained in more usual processes.

Carrier Predicts Man Will Live in Complete 'Conditioned Cycle'

NEW YORK CITY—An "air-conditioned cycle" in which every man will sleep, eat, travel, work, relax, and "even walk on the streets" in healthful, comfortable surroundings was predicted Jan. 12 by Dr. Willis H. Carrier, speaking before a meeting of the American Institute of the City of New York on "The Future of the Air Conditioning Industry."

The chairman of the board of Carrier Corp. said: "Twenty years ago, the art of air conditioning was already contributing to the controlled production of several industries. With the rapid improvements and technological advancements during the last few years, air conditioning has reached a point where business is using it so that everyone can enjoy it. In 20 years man will exist in an air-conditioned cycle which may even extend to the streets upon which he walks."

Dr. Carrier explained this would be possible when every enclosure on a busy street had air conditioning and cool air poured out from each one to give the effect of an air-conditioned street. He cited a city block in Buffalo, N. Y., which today has enough air-conditioned stores and offices on one side of the street to make pedestrians comfortable when doors are opened.

"In the past, air conditioning has been installed largely because it pays," he said. "In the future, we will see the development of the application for personal comfort, health, and sustained efficiency in private offices and particularly in homes.

"Air conditioning in the home gives a far more even temperature than we have previously experienced. It prevents especially the great variation in temperature otherwise existing from floor to ceiling. Through the maintenance of a proper humidity and the filtering of the air, not only is comfort increased, and health promoted, but also a marked and impressive gain in cleanliness is achieved.

"In the future air conditioning may even have the effect of making winter vacations more popular than summer vacations and in time may radically affect people's habits."

Dr. Carrier pointed out that air conditioning in 20 years would be a greater factor than today in developing desirable office buildings and homes for the public.

"While theaters and stores first introduced air conditioning favorably to the public, the standardization of air conditioning on railroads has been even more impressive as a means of producing public acceptance," he stated.

"When persons ride on air-conditioned trains, work in air-conditioned offices, shop in air-conditioned stores, eat in air-conditioned restaurants, and relax in air-conditioned theaters, they are naturally not going to be satisfied until they have air-conditioned homes."

The American Institute, the object of which is "the integration of science with social progress" met at the Aldine Club, 200 Fifth Ave.

Utica Washed Air System Installed in Dental Clinic Building

DETROIT—Comfort for a dentist and his patients together with the elimination of smoke are accomplished by a Utica washed-air conditioning system installed in the clinical building of Dr. A. F. Anderson here by Heat Conditioning Co., reports A. W. Wolthouse of the installing firm.

Heat for the building is supplied by an oil burning Utica hot water boiler connected to a Utica vertical air conditioner that provides heated, washed, and conditioned air to the operating rooms, laboratory and reception rooms.

Summer cooling is obtained from a 3-hp. Brunner condensing unit, equipped with its own heat exchanger, which supplies 40° F. water to an air-washer chamber in the conditioner. Temperature and humidity control is maintained at all seasons of the year by means of a Detroit Lubricator thermostat and humidistat.

"Air washing by means of a spray type conditioner has definite advantages in an application of this character," Mr. Wolthouse asserts. Dr. Anderson was just as pleased with the removal of tobacco smoke from the building as with the comfort conditions created."

Airtemp Conditions 5 Cars On New Streamlined Reading Train

NEW YORK CITY—Air-conditioning equipment has been installed by Airtemp, Inc., in the five cars composing the new luxury streamlined train on the Reading railroad, recently put into service between here and Philadelphia.

Each coach has a separate system, and the individual units are floor-type cooling units operated by 10-hp. motor-driven compressors, condensers, and coils, which are mounted under the skirt of the car.

Cars are constructed to provide for 25% outside and 75% recirculated air, which is mixed, drawn through the cooling coils, and circulated through the cars by means of ceiling ducts.

Constant temperature of 75° F. is to be maintained throughout winter and summer, regardless of outside weather conditions.

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One thousand hours of home-study, backed by *Two Weeks'* intensive work IN OUR SHOPS, in Chicago—where every graduate dismantles, rebuilds, installs, and services all conventional air conditioning and refrigeration equipment—all under the direction and supervision of factory engineers, working right in the industry—gives our graduate a thorough working knowledge of theory and practice—makes him ready to go right to work for you.

Thus, this Training Program gives you a *New Type of Craftsman*—not a plumber, not a steamfitter, not a sheet metal worker, or electrician; but in a way, a composite of all these crafts—a man who knows thoroughly every phase of heating, ventilating, and cooling as applied to air conditioning—a man to build on for the future.

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Ray A. Smith
President

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Types of Firms Selling Air-Conditioning Equipment in Baltimore

Company	A	B	C	D	E
Primary business	Air Conditioning	Commercial Refrigeration	Commercial Refrigeration	Household Refrigeration	Air Conditioning
Concern Sells:	**% of Business**	**% of Business**	**% of Business**	**% of Business**	**% of Business**
Year-around systems	25%		25%	5%	10%
Summer systems	65%	100%	75%	95%	30%
Winter systems	10%				60%
What Types of Systems (Comfort Cooling Only)	**Trend**	**Trend**	**Trend**	**Trend**	**Trend**
Central type systems	Down	....	....	....	Up
Remote floor type systems	Up	....	....	....	Down
Remote ceiling type systems	Up	....	....	....	....
Self-contained room coolers	Up	....	....	....	....
Does concern sell and install large contracts or are these jobs sold and contracted direct by the air-conditioning manufacturer?	Dealer Sells and Installs	Works as Split Franchise, Another Company Handles larger jobs.	Sold and Contracted Direct by Air-Conditioning Manufacturer	(Factory Branch)	Company Does Own
Number of Jobs Sold	**1936 / To May 1, 1937**	**1936 / To May 1, 1937**	**1936 / To May 1, 1937**	**1936 / To May 1, 1937**	**1936 / To May 1, 1937**
Room coolers	20 / 50	.. / ..	12 / *	† / 8	† / 18
Others					
Up to 5 tons	4 / 0	.. / ..	1 / ..	.. / ..	.. / 5
5 to 10 tons	5 / 6	6 / 10	4 / ..	.. / 1	.. / 2
10 to 25 tons	8 / 3	.. / 2	2 / 2	.. / 2	.. / 1
25 to 50 tons	4 / 6	.. / ..	.. / ..	.. / ..	.. / ..
50 to 100 tons	2 / 3	.. / ..	.. / ..	.. / ..	.. / ..
Over 100 tons	0 / 0	.. / ..	.. / ..	.. / ..	.. / ..
Is concern primarily of the engineering and contracting type, specialty selling type, or a combination of both?	Combination	Engineering and Contracting	Engineering and Contracting	Combination	Combination
How many engineers employed	Three	....	Two	One	Two
How many salesmen employed	Four	....	One	One	Three
On Air-Conditioning Jobs Which Concern Sells, How Are Following Handled:	**Done by Own Organization / Sublet to Others**	**Done by Own Organization / Sublet to Others**	**Done by Own Organization / Sublet to Others**	**Done by Own Organization / Sublet to Others**	**Done by Own Organization / Sublet to Others**
Sheet metal and ductwork	X	X	X	X	X / X
Plumbing	X	X	X	X	X
Electrical	X	X	X	X	X
Refrigerant piping	X	X	X	X	X
Insulation	X	X	X	X	X / X
What accessory items does firm handle	Filters	....	....	....	Controls, Blowers, Attic Fans, Exhaust Fans, Pumps

*Figures not available

†Company formed in 1937

Company	F	G	H	I	J	K
Primary business	Heating and Ventilating	Heating	Heating and Ventilating	Commercial Refrigeration	Commercial Refrigeration	Commercial Refrigeration
Concern Sells:	**% of Business**	**% of Business**	**% of Business**	**% of Business**	**% of Business**	**% of Business**
Year-around systems	4½%	....	....	....	....	....
Summer systems	32 %	75%	....	....	7%	....
Winter systems	63½%	25%	....	....	93%	....
What Types of Systems (Comfort Cooling Only)	**Trend**	**Trend**	**Trend**	**Trend**	**Trend**	**Trend**
Central type systems	Up	Up	....	Down	Up	Down
Remote floor type systems	Down	Up	....	....	....	Up
Remote ceiling type systems	Down	....	....	Up	....	Up
Self-contained room coolers	....	....	....	....	Up	....
Does concern sell and install large contracts or are these jobs sold and contracted direct by the air-conditioning manufacturer?	Sell, but Sublet Installations	Sells Coils Only on Big Jobs	Company Sells and Installs	Company Sells and Installs	Company Sells and Installs	Dealer
Number of Jobs Sold	**1936 / To May 1, 1937**	**1936 / To May 1, 1937**	**1936 / To May 1, 1937**	**1936 / To May 1, 1937**	**1936 / During 1937**	**1936 / First Half 1937**
Room coolers	3 / 3	.. / ..	20 / ..	.. / ..	.. / ..	.. / ..
Others						
Up to 5 tons	.. / ..	.. / ..	.. / ..	.. / ..	.. / 1	1 / ..
5 to 10 tons	.. / 1	.. / ..	4 / ..	.. / ..	.. / 2	2 / 2
10 to 25 tons	.. / 2	.. / ..	.. / 4	.. / ..	.. / ..	1 / 2
25 to 50 tons	1 / ..	.. / ..	.. / ..	1 / 1	.. / ..	.. / ..
50 to 100 tons	.. / 1	.. / ..	.. / ..	2 / ..	.. / ..	.. / 2
Over 100 tons	.. / ..	.. / ..	.. / ..	.. / 2	.. / ..	2 / 1
Is concern primarily of the engineering and contracting type, specialty selling type, or a combination of both?	Engineering and Contracting	Engineering and Contracting	Engineering and Contracting	....	Combination	Combination
How many engineers employed	Two	One	One	Two	Two	One
How many salesmen employed	One	One	One	Two	Two	One
On Air-Conditioning Jobs Which Concern Sells, How Are Following Handled:	**By Own Organization / Sublet to Others**	**By Own Organization / Sublet to Others**	**By Own Organization / Sublet to Others**	**By Own Organization / Sublet to Others**	**By Own Organization / Sublet to Others**	**By Own Organization / Sublet to Others**
Sheet metal and ductwork	X	X	X	X	X	X
Plumbing	X	X	X	X	X	X
Electrical	X	X	X	X	X	X
Refrigerant piping	X	X	X	X	X	X
Insulation	X	X	X	X	X	X
What accessory items does firm handle	Controls, Blowers, Exhaust Fans, Attic Fans, Supply Fans, and Filters	None	....	None	None	None

Merchandise Mart Club Is Air Conditioned

CHICAGO—Air conditioning for the new quarters of the Merchants and Manufacturers Club, on the second floor of the Merchandise Mart, was supplied jointly by Carrier Corp. and R. B. Hayward Co., while plumbing, heating, and acoustical materials were furnished by Kinnare Corp., which also contracted for all general construction, plastering, tile and glass work, flooring, folding partitions, ornamental iron and marble work.

Kitchen of the club's new quarters is furnished with all the most up-to-date equipment for large scale cooking. Stainless steel was used wherever practical. A battery of four Vulcan ranges and a broiler form the basis of the kitchen's equipment. A series of General Electric units supplies the refrigeration.

Other time and labor-saving equipment includes a Sterling potato peeler, a Thermotainer roll warmer which has a separate temperature control for each drawer, three coffee urns which are thermostatically controlled to preserve the oils and prevent stewing, a large Toastmaster, an electrical ice cream cabinet, a Champion dish washer of the type which uses no baskets, and a Smith & Wesson glass washer that is entirely automatic.

A large size Hobart mixer, a Wyott cream dispenser which operates at the push of a button, and a new type of Wearever plate ring help to round out the list of equipment.

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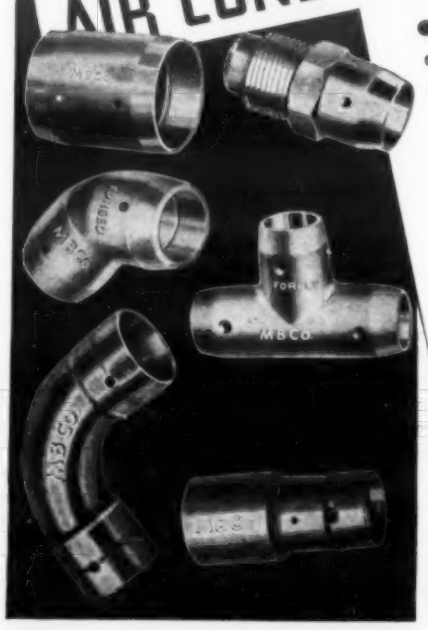

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Air Conditioning News

Firm Specializing in Air Conditioning Gets Major Part of Business in Baltimore, News Survey Shows

WHAT kind of local businessmen have been selling the **true** air conditioning that has been installed in the past few years, and what kinds of firms will be selling and installing such equipment as the market expands in the future?

That question is the prime point in all discussions of air-conditioning merchandising, but while there has been much loose talk and claims made on all sides, there has been very little published or presented in any form of the facts in the matter.

Last summer, chiefly to satisfy its own curiosity about the subject, AIR CONDITIONING & REFRIGERATION NEWS sent out staff members to make a couple of surveys aimed to dig up some of the facts about the kind of firms that were selling air-conditioning equipment. The staff members making the survey were instructed to stay in the town visited until they had found out all they could about the local firms who were making the air-conditioning installations.

While the findings may not be conclusive, the editors believe that the facts about air-conditioning merchandising uncovered by the staff members last summer will be enlightening. The key information from the survey which was made in Baltimore is presented in the tables on page 8.

First, the NEWS staff members ascertained that there were 11 firms in Baltimore selling and installing "true" air conditioning (by true air conditioning is meant year-around equipment including cooling by mechanical means). These firms are designated in the above table by the initials "A" through "K."

Of these 11 firms asked the question "what is your primary business," two replied "air conditioning"; five specified "commercial refrigeration"; two designated "heating and ventilating"; one replied "household refrigeration"; and one answered "heating."

From the figures obtainable on installations made in 1936 and part of 1937 it can be noted that firm "A" was doing about 50% of the total air-conditioning business in Baltimore, with the greater share of the balance going to the firms which designated their main business as that of "commercial refrigeration." The plumbing and heating contractor does not seem to be a factor in air-conditioning merchandising in Baltimore.

Most of the dealers interviewed hedged on the question as to the trends toward central systems, remote cabinets, or self-contained types, by saying all were on the increase. It may be significant, however, that firm "A," doing 50% of the business, found the trend to be away from central installations.

It may also be important to note that the firms doing the big share of year-around and summer cooling business are apparently concentrating on those two divisions of the field, and are more or less leaving the winter conditioning business to firms which specialize in winter conditioning only.

Executives of the 11 firms interviewed were asked to state whether their companies were primarily of the "engineering and contracting" type, the "specialty selling" type, or a "combination" of both.

From the table it will be seen that those firms which are the "combination" or specialty selling and engineering-contracting have been most successful.

Most of the firms, unless they are working on a split franchise or are a factory branch, contract for and install jobs of any size. Noteworthy, however, is the fact that a great part of the actual installation work (such as sheet metal, plumbing, electrical, and insulation jobs) is sublet to other contractors.

However, most of the firms, it will be noted, apparently maintain refrigeration service and installation men, for nearly all of them specify that they do their own refrigerant piping.

With two exceptions, the Baltimore dealers apparently act as jobbers of air-conditioning parts and accessories.

Seven of the 11 dealers interviewed were subscribers to AIR CONDITIONING & REFRIGERATION NEWS—and six of these subscribers ranked in the first seven leading dealers in sales for Baltimore.

Burgess Develops New Throw-Away Filter

CHICAGO—A new throw-away type air filter for warm air furnaces, ventilating and air-conditioning systems, air compressors, and internal combustion engines has been developed by C. F. Burgess Laboratories, Inc.

In the new filter, air is cleaned as it impinges against layers of expanded fibre, which have been sprayed with a sticky compound that retains dust and pollen. Three sections—coarse, medium, and fine mesh—make up the completed filter. Each section consists of seven layers of fibre.

Because the mesh of the filter baffles gets progressively finer and finer, and because the stickiness increases as the air travels through the filter, it is claimed there is little danger of surface clogging and that dust is deposited uniformly throughout the filter.

It is claimed that tests indicate that the filter will hold 132 grams of standard dust for every square foot of frontal area. High cleaning efficiency also is claimed because the air follows a twisting path through the filter, changing direction 21 times.

Air-Conditioning Leads Secured At Theater Equipment Show

COLUMBUS, Ohio—DeWitt Wyatt, representative here for General Refrigeration Corp., manufacturer of Lipman equipment, reports that a number of good leads resulted from the air-conditioning display which he staged in conjunction with a local exhibit of theatrical equipment. Prospects obtained included a dozen theaters, several department stores, and a number of residences.

Problem of Controlling Noise in Ventilating Is Discussed by Stanton

NEW YORK CITY—The problem of noise in ventilating was outlined and methods of approach to its solution were described by G. T. Stanton, manager, technical consulting department, Electrical Research Products, Inc. at the Jan. 17 meeting of the New York chapter of the American Society of Heating and Ventilating Engineers.

Mr. Stanton, who acted as consultant in connection with acoustical problems in the design of the Lincoln vehicular tunnel here, defined noise in simple terms as the variation of pressure in the ear. Noise, he said, may be reduced by any of the following means: decreasing the resistance of vibrating parts; reducing the forces which cause vibration; reducing the area in vibration; and reducing transmission of vibrating forces.

In some types of electrical equipment, Mr. Stanton explained, it has been possible to set up sound waves in opposition to troublesome noises so that the two are out of phase and destroy each other. This procedure, however, is not practical in mechanics, he declared.

Methods for reducing the resistance of vibrating parts, reducing the vibrating forces, and reducing the area in vibration are all problems of the machine designer, however, and usually must be taken care of before the apparatus reaches the field.

In the field it is possible to reduce the vibrating forces that reach parts of the machine or system which are free to vibrate. One way of accomplishing this is, for example, to introduce springs between the vibrating force and the transmitting part.

To illustrate this, Mr. Stanton described the action of a weight suspended from a spring with the vibrating force acting from above. If the force vibrates vertically, increasing in amplitude, the vertical motion of the suspended weight becomes greater and greater.

Depending on the degree of "softness" of the spring, the amplitude of the weight will reach a point of resonance with the force. If the spring is soft, this point will be passed as the frequency increases, and the amplitude considerably dampened.

On the other hand, if the spring is relatively stiff the weight will remain in resonance with the spring.

Consequently, when a machine is mounted on springs, these springs must be soft enough to allow the suspended weight to pass through the critical point some time during the starting-up period, so that the vibration will be dampened when the machine reaches its speed, even though the vibration is relatively high at some time during the starting up period.

The speaker cautioned his audience that in using acoustical material for sound absorption in ducts the duct must not be too large in cross-sectional area relative to the wave length of the sound being transmitted.

If the duct is large, the acoustical material should subdivide the duct into a number of smaller sections, since sound tends to travel along the center line of the duct, and by breaking up the duct the transmitted sound is also broken up.

In response to questioning, Mr. Stanton said that canvas connections from fans to ducts need not be more than a fold or two in length, but added that painting such canvas with heavy metallic paints may increase the sound transmission through the canvas sharply.

Duct-Type Ionizer Made By Lowell Corp.

PHILADELPHIA—A new duct-type ionizer for use in connection with ventilating and air-conditioning systems is being introduced by Lowell Air Conditioning Corp., manufacturer of humidifiers, ionizers, and deodorizers.

Installed in the system's return intake duct or fan chamber, this ionizer is said to create ozone to deodorize and refreshen the air. The company also makes portable models of these ionizers for room use. These models are equipped with a fan and a volume control dial.

Air Conditioning Exports Total $120,538 in November

WASHINGTON, D. C.—Exports of air-conditioning equipment in November totaled $120,538, compared with $58,604 during the same month of 1936, according to figures made public by the machinery division of the U. S. Department of Commerce. Exports of blowers and ventilating machinery totaled $134,576 during the month, compared with $40,523 for the corresponding period of 1936.

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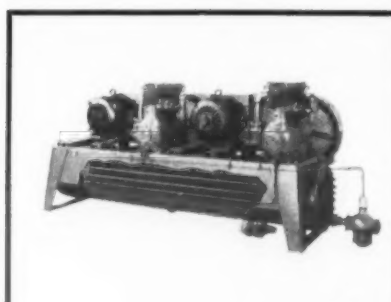

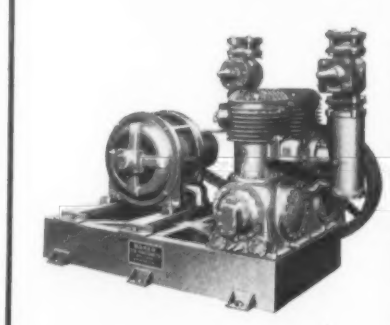

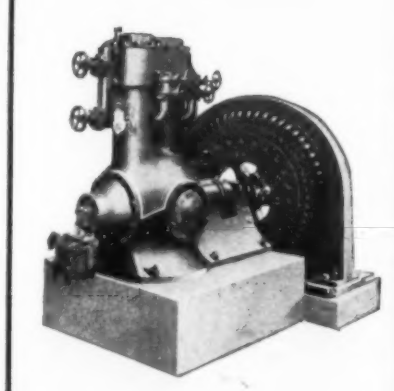

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ALFRED JONES, JAMES MCCALLUM, and HENRY KNOWLTON, JR., *Staff Reporters*

R. T. CARRITHERS, *Advertising Mgr.*
HELEN K. GILMORE, *Asst. Adv. Mgr.*
JAMES B. SMITH, *Asst. Adv. Mgr.*

JOHN R. ADAMS, *Business Manager*
ROBERT P. NIXON, *Asst. Business Mgr.*
JEAN H. ADAMS, *Subscription Manager*
LOLA E. DEW, *Circulation Manager*
WINIFRED MERSON, *Spec. Representative*

Advertising Representatives:
Lewis & Noelle
612 N. Michigan Ave., Chicago, Ill.
Superior 8550

Member, Audit Bureau of Circulations
Member, Associated Business Papers

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Industrial Publicity —and How to Get It

PUBLICITY is almost invariably mystifying to the average industrialist or retailer. It's something he usually wants—or feels the need of—but is not, it would seem, a tangible that he can wrestle with and master.

Usually the job of getting publicity for a new product, a new company, a new store, a new campaign, or a new man is turned over to advertising specialists. They seldom know much about publicity methods, either. Their formula, distasteful in the extreme to all self-respecting editors, runs about as follows:

Write a highly glowing *advertisement*, using superlatives inflated with hot air which they wouldn't dare inject into a *paid* advertising message, and mail it to the editor of a publication, with the admonition that unless this literary masterpiece is published word-for-word as written, the publication won't be considered for its share of the huge advertising bonanza about to be released.

Formula Used by Old-Time Newspaper Man

Or, an old-time newspaper man "with connections" is hired as a "publicity man." His formula is almost equally obnoxious:

Write a hasty blurb, inaccurate and uninformative, and take it to the editor along with a slap on the back and an invitation for dinner. If the story is good, the editor is going to print it, irrespective of the dinner. Fact is, there are probably 20 persons the editor would *rather* dine with at that particular time.

Editors of the NEWS do not set themselves up as experts in business publicity, but from long experience with the kinds of publicity and publicity methods that they do not like nor consider effective, they have reached some conclusions on the subject which may be helpful to all those who realize that their own publicity is not quite up to snuff.

Business men now see that Industrial Publicity is a selling job of the first water, one which calls for experts in the business of interpreting, in print, the thinking of specialists—and in language comprehensible to the common man.

Policy of Frankness Is First Requisite

First requisite is a policy of frankness, a willingness to "open up" and take the public into the confidence of management. The old policy of "get 'em young, treat 'em rough, and tell 'em nothing" has no more place in today's scheme of things than the "public be damned" theory of the nineteenth century.

Industrialists are coming to agree with the policy attributed to Henry Ford:

"I don't care what they say, so long as they say, 'Ford.'"

People are glad to trade with a man they know and like. They trust him, and come back to his store again and again, habitually. But a big, impersonal corporation is likely to be something else, to their way of thinking. Ordinarily honest men seem to feel no pricks of conscience if they can rob or "gyp" a corporation. Juries frequently feel the same way. And democratic governments!

Human Element in Dealing With Large Corporations

But if people can identify a corporation with some particular *man* they like or trust, with some winning personality, then the big company becomes humanized to them; and they are not so apt to think of the big concern as being something cold and soulless, controlled by a few rich men who are waxing fat on excess profits wrung from the defenseless "common people."

This is one explanation for the success of radio advertising. People bought Jello because they identified it with Jack Benny, or Pepsodent because of sympathy with the trials and tribulations of Amos and Andy. (This is no idle theory; it has been proved over and over by consumer surveys.)

Sell Definite Personality To Public

Hence the first job on the docket of the company which would employ successful publicity methods is to find a definite personality which can be sold to the public.

Next task of the publicity department is to establish friendly relations with publishers, editors, reporters, and columnists. This is sometimes overemphasized, with boomerang effect, as in the case of attempted bribery. Nor can friendship be relied upon too heavily.

News values are still of paramount importance.

But when introducing a new product, it is common practice among specialty manufacturers to invite editors and reporters to a dinner or luncheon, at which time they are given a "preview" of the new product—or plan—and during which the news values of the innovation are generally dramatized.

Old newspapermen who seek publicity jobs on the strength of the fact that they "know a lot of editors" aren't nearly so valuable to the specialty business as publicity men who know how to dramatize the news, so that it will sell itself to editors on its own merits.

Contacts with editorial staffs are important, however, when it comes to writing publicity stories. Each publication has its own style; every editor worth his salt has his own pet theories as to the presentation of facts.

After becoming acquainted with these individual requirements, the smart publicity man can prepare his releases so that they will need a minimum of editing. A piece which comes to an editor's desk written exactly according to the style of his "sheet," and following the principles he dotes on, has a far greater chance of landing in the news columns than one which must be laboriously rewritten.

What can a publicity man look for when he is hunting for news around a factory, or specialty selling organization?

What Is News?

In the first place, news really can't be invented. It has to happen. If he has a good "nose for news" he'll detect it at once, and capitalize on it. If he lacks that sixth sense, he shouldn't be in the profession.

There are a number of routine matters, however, which are news (paradoxical as it may seem). New products, for one. New processes. Personnel changes. Deaths. Disasters. Discoveries. Conventions.

In the case of a convention, the publicity man can save a newspaper's time by covering all the speeches and activities, and submitting a complete report. Discoveries of a scientific nature, new processes, new products, all can be explained in detail—and simply—so that a green reporter won't garble the story.

Getting Help of Technical Men on Technical Jobs

All too frequently a new industrial development of great significance and genuine news value is passed up by the newspapers because the reporters and editors don't understand it, and hence underestimate its importance—or because they haven't the technical equipment to explain it to readers.

In these cases the publicity man can enlist the aid of the company's engineers or research department to get the explanation, and use his own talents to translate this into language intelligible to the much-discussed "average reader."

It is also the job of the publicity department of a modern specialty organization to keep editors informed on coming events, so that they may keep their "future book" up-to-date. One of the most important jobs of an editor is to know, or be able to guess, *what's going to happen*, and have a man on the spot when it does.

By tipping off editors on future developments, and by providing them with background information so that they may be prepared to give the subject thorough coverage, they will earn the undying affection and esteem of the blue-pencil craft.

Many industrial executives don't realize that what they *think* is news. A president of a big corporation is an important individual. What he thinks about issues of current interest—especially in political and economic fields—is likely to interest large numbers of readers.

This rule holds true for specialty dealers and the newspapers of their communities. In a town of, say, 50,000, the specialty dealer is likely to be a very well-known merchant, especially if his promotion activities have been good. His opinions are worth quoting.

Interpreting Opinions of Company Executives

Most executives are too busy to set down their opinions, although they frequently have highly original reactions, and often are especially well-informed on certain subjects, and qualified to talk about them.

It then becomes the job of the publicity man to interview his own chief. First, the publicity man must be alert to discern live issues when they present themselves, and know when to submit such an interview to the press. Secondly, he should be acquainted with the topics on which his chief, or chiefs, are best informed and most interested. Third, he should be of signal help in the framing of the statement.

Writing Stories for Use In Trade Press

In writing stories for trade papers, the publicity man should remember, of course, the old Who-What-Where-When-Why-and-How formula. "How" is especially important to the reader of business publications.

It is not enough to say that a new product is more efficient. *How* has its efficiency been increased? It is not sufficient to say that a salesmanager has devised a new method of getting prospects, or closing sales. Just *how* does it work?

Readers of trade papers are almost frightfully literal-minded. They don't subscribe to trade papers just to have something to read in idle moments. They want information which affects their business, gives them ideas, helps them with their problems.

And they want to know *how*.

Five Rules to Follow In Press Relations

Moreover, such readers are inclined to have a skeptical turn of mind. They've heard about startling new developments before. Perhaps they've been stung a few times. They're from Missouri. If you tell them *how* something works, they can judge for themselves whether or not it will help them make money.

This little treatise could go on for pages. But the chief rules to remember are: (1) Find out what type of material the publication prints, follow its style, and don't submit anything which is contrary to its wants or policy. (2) Don't try to bribe the editors. (3) Don't try to browbeat the editors. (4) Don't approach the editorial department through the advertising manager. (5) Play fair, be honest, take the editors and reporters into your confidence.

LETTERS

'Demonstrate' Is Ke Pleasantaire's 193

Pleasantaire Corp.
Washington, D. C.

Editor:

You have performed a gre for the air-conditioning de prospective dealer in your pages 16 and 17 of AIR COND REFRIGERATION NEWS of Jan.

You could have found method than this to get the man on the firing line air-conditioning picture pres the industry leaders.

We were gratified to note manufacturers agree that t age unit," aggressively sold who know the specialty g constitute the biggest 1938 We were somewhat surprise however, that we were manufacturer who backed theory with advertising columns!

Pleasantaire is not a la pany as air-conditioning orga go, but we have had valuab ence in merchandising pack through all types of deale in 40 states.

In the light of the com other manufacturers, we answer your eight ques follows:

Answers to questions one are difficult. The dollar vo air-conditioning sales in 193 pared with 1937 is exceedingl due to the lack of break figures among the various air conditioning in 1937 While room cooler sales for been estimated anywhere 6,000 and 14,000 units, we figure of 7,500 to 8,000 units sold to the public would accurate.

We are convinced that in number of room coolers sol public will depend entirely *number of demonstrations prospect's own premises.* If industry together can obtai of 100,000 short demonstratio offices and homes of prospe is no reason why room coo cannot be doubled or trel summer.

In our opinion, specialty with or without refrigeration can do the biggest room cool job. While any summer a tioner must have a refr organization for servicing, se be done by any specialty orga

The office market is the reach in the short hot sea office appliance dealers are a best sales outlets. The offic dealer knows office selling is no reason why he cannot with package units either as himself with refrigeration connections, or on a straight sion basis for air-conditioning A salesman need not be an tioning engineer to sell a unit which "plugs in like broadcasts comfort."

By far the most importan be taken to educate the deal proper method of package ing and in increasing his sale to caution him as to the li of the fractional horsepower unit, and second to give hi tailed sales program.

Our own company has what we call the "Pleasantai age Plan" in which the told exactly how to start, and control plan to cover the selling, a complete calendar activities, a detailed plan salesman's week, inspection for salesmen with warnings over selling, and an adequat of testimonials from roon users.

Perhaps most important o have urged the prospective give each salesman a copy Conditioning Made Easy."

We should sell "relief from suffering" and stop selling "There is a vast difference.

While Pleasantaire makes 500-watt room cooler and fier, we are urging our de handle a good ¾-horse jo they are set up to do so. T are not qualified to install unit, are urged to sell for tioning dealers on a commiss

We feel that the greatest tion that Pleasantaire can the industry is by making available to every air-con concern in the field. The dea a product light enough an enough to take to the ho offices of every real prospe rooms in which our unit is t he sells the higher capacity best way to sell the big roo is to show the little one firs

RICHARD F.

Specialty Selling Ideas

Dual-Manager System Helps Schwegler Bros. Increase Sales Volume 30% in Year

BUFFALO—By instituting a dual-manager system in its three stores here, Schwegler Bros., Kelvinator dealer, has increased sales of refrigerators and air-conditioning equipment to the extent that the total volume of business in 1937 was 30% greater than that of 1936, according to Theodore L. Anderson, sales manager.

"The system, the outcome of a long sales meeting a year ago, is itself simple," Mr. Anderson explained. "Instead of one manager, we use two. One manages the store; the other manages the sales force in the field.

"Each week they alternate. Both managers share in the commissions derived from the field and store. In other words, they literally become partners.

"Obviously, the more business the field man can send into the store, the more money he earns. Also the more money the manager on duty in the store at the time makes."

Mr. Anderson says that two primary accomplishments of the system have been to give the men confidence in their employers, and to inspire them to work harder and longer because they do so as much for their own benefit as for the company.

The system first was introduced in Schwegler's main store, said Mr. Anderson, and the immediate business pickup was so noticeable that a dual-manager team was put in charge of each of the other two stores. Schwegler's soon will apply the system to the Niagara Falls, N. Y. store.

"Under ordinary systems," Mr. Anderson declared, "the field man does not share in the store sales commissions. With our system, the field man and store man pull together as a team."

The business increase at this time is really remarkable, he continued, because refrigeration unit sales have more or less reached saturation point in Buffalo.

Schwegler's system also has heightened local interest in home air-conditioning, Mr. Anderson stated. The field man making calls on refrigerator prospects includes air-conditioning in his sales talk and creates enough interest to cause many home-owners to visit a Schwegler store, inspect and have explained to them the air-conditioning equipment, and in many cases buy.

12-Month Sales Effort on Refrigerators Keeps 40 Salesmen Employed by Gas Utility

MINNEAPOLIS—By maintaining a sales staff of 40 to 50 men engaged in promoting major gas appliance sales the year around, Minneapolis Gas Light Co. insures a 12-month appliance season, according to P. G. Burns, commercial manager.

The salesmen spend part of the time on the floor in the utility's store, Mr. Burns said, but the larger part of their time is taken up by personal contacts with prospects in their homes or offices.

"They develop their own prospects," stated Mr. Burns, "the majority of these being persons they meet in the salesroom. Other leads come from personal friends, and from contractors and builders. All of the men receive a regular salary, and in addition a commission on all the refrigeration units they sell.

"They have no set quota, but records are kept of all the sales and prospects, and unless a man can show real sales ability he does not last long.

"Each man has an exclusive territory, and we try to divide this as equally as possible, as there are certain sections of the city that offer a far better opportunity than others for the sale of these units."

The utility's salesmen are all city men, Mr. Burns pointed out, although the company has representatives in outlying small towns. These suburban agents are called in frequently to do floor selling and keep informed on the latest developments in the industry.

"While we concentrate on selling refrigerators for the holidays and also have a special campaign early in the spring, we sell refrigerators 12 months in the year, as there are new homes being built and new buildings going up all the time," said Mr. Burns.

"New displays are constantly being installed by our display manager, V. W. Lutter, to tie in with printed publicity," he continued. "One of the most effective of these was one that was set up at the opening of the fishing season in early spring. It showed a boy in overalls casting a cork into the water.

"Logs, grass, and ferns were arranged in the foreground, and in the rear a large, blue circle, with the lettering in white, 'Never a Noise.' Set against this card was one of our latest model refrigerators, while another card said, 'Never a Noise—The lack of moving parts is the reason there is no friction or wear.'"

"Our 'Comfort Courier,' a house magazine dealing with gas appliances, is mailed every month to 15,000 homes," Mr. Burns concluded, "and elicits many inquiries and gives leads through which many sales are made."

Kelvinator Designs Sales Promotion to Sell Products

DETROIT—Promotional displays should be real sales helps rather than mere pieces of decoration, and sales literature should consist of a few really complete pieces rather than a multitude of small, necessarily sketchy folders and inserts—this is the theory upon which Kelvinator division, Nash-Kelvinator Corp. has prepared its electric refrigeration promotion for 1938.

Consequently, Kelvinator is making available to its dealers this year large, brightly colored floor and window displays which are built for use around actual refrigerator models, and which, by means of pictures, diagrams, and brief reading matter, quickly acquaint the prospective customer with the unit's outstanding features.

Sales literature for consumer distribution during 1938 consists of the regular line catalog, a folder describing the special models, and an envelope insert which, in condensed form, highlights all features of the regular line. All three pieces are printed in three colors.

By confining principal promotion literature to these three pieces, and by printing these pieces in large quantities, Kelvinator is able to make them available at extremely low prices.

In addition to the sales and promotional material already described, the Kelvinator dealer will have at his disposal various types of signs and banners, specification sheets, sound-slide films with supplementary manuals, pocket product and price manuals, weekly sales bulletins, and a sales training course.

4,000 G-E Waffle Irons Are Offered as Prizes In 4-Week Contest

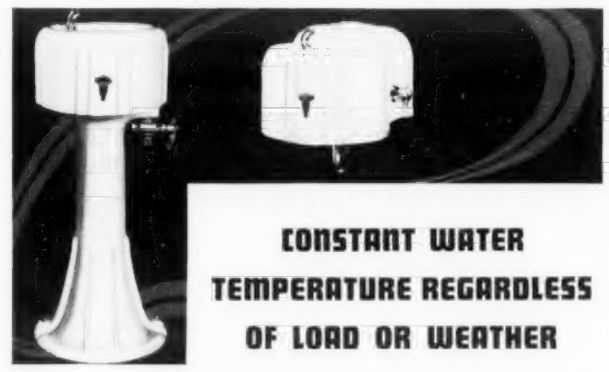
NEW YORK CITY—General Electric waffle irons—4,000 of them—will be awarded to winners of a national contest to be cooperatively promoted by General Electric Co. and General Mills, Inc., for four weeks beginning Jan. 24.

Participants in this contest will be required to write a sentence telling why they like to use "Bisquick," a prepared flour product of General Mills.

Waffle irons will be awarded to writers of the 200 best letters received each day (for five days a week) during the four weeks. Non-winning contestants will be given a credit certificate entitling them to an allowance of $1 on the purchase of the same waffle iron from their nearest G-E dealer. Regular retail price of the iron is $6.95.

The contest will be pushed daily on the General Mills program over Columbia Broadcasting System, and grocery stores will be supplied with promotional posters.

A number of similar cooperative programs during the past year have been highly successful.



CONSTANT WATER TEMPERATURE REGARDLESS OF LOAD OR WEATHER

Load on any water cooling system increases with warm weather. If water is cooled in the basement, line losses also increase with hot weather. The combination overloads the ordinary system so cold water is not available when most desired.

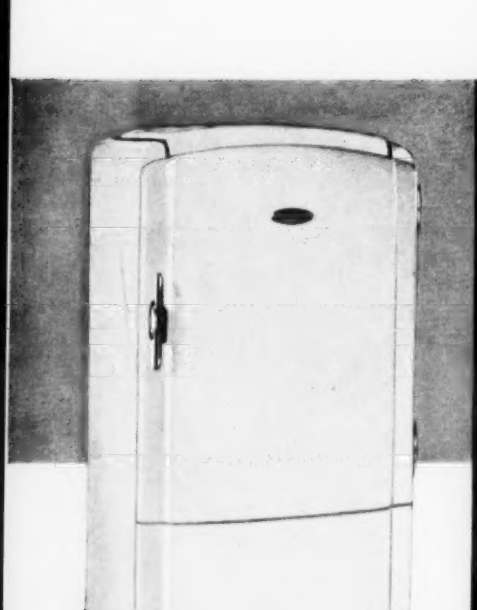
This is not the case with the Temprite Multiple System of Water Cooling. Water is cooled *at the fixture*. There are no line losses to overcome. No matter how hot the weather, or how great the demand for cold water, each fixture delivers at constant temperature.

Each fixture can be set for a different temperature. The first ounce of water drawn is *always* cold—no waiting for a drink—no waste of time nor water.

Economical—easy to install—the Temprite Multiple System gives satisfaction. Write for literature.

TEMPRITE PRODUCTS CORP. *Detroit, Mich.*

FAIRBANKS-MORSE



You need not pass up a single prospect, with the Fairbanks-Morse line. There is a model, a size, and a price to meet every requirement. In addition, models without the Conservador offer sparkling beauty plus every desirable feature found in other refrigerators. The new Fairbanks-Morse "E" line goes one step farther and offers the exclusive *Conservador*, the greatest of all features in any refrigerator. No other refrigerator line can offer its dramatic demonstration possibilities. No other line has as many salable features. More prospects ask for a demonstration, and you close more sales, when you have the Fairbanks-Morse refrigerator with *Conservador* on your floor.

Models with the CONSERVADOR

Act Now . . .

The Fairbanks-Morse Home Appliance franchise is backed by the hardest-hitting sales promotion and advertising you have ever seen . . . and 108 years of manufacturing experience. It can include refrigerators, radios, and home laundry equipment . . . one or all three. There is real profit in it for you if you can qualify. Investigate . . . write, wire, or phone

FAIRBANKS, MORSE & CO.
Home Appliance Division
2900 Northwestern Ave. Indianapolis, Indiana

Swing OPEN THE [illegible] more sales and profits in [illegible]pen the of the new Fairban[illegible]ks-M[illegible]frig[illegible]erato a prospect *someth[illegible]ng[illegible]* . . . sive, patented CONSER[illegible]. That's greater sales. Any pro[illegible]can see, that here is the outst[illegible]proveme refrigerators of the p[illegible]ty years can see why it gives [illegible]igerator quickly usable space [illegible]her refri the same cubic foot [illegible]. No cra crowding. No huntin[illegible]ifting. N Twice as many thing[illegible]r finger scores of other worth[illegible]*lling fea* not "gadgets."

"26% MO[illegible]KLY USA

"BACKED BY [illegible]RS OF ENGINEERING [illegible]ENCE AND A 5-YEAR [illegible]NTY"

"NEW [illegible]LINED BE[illegible] ON SIGH

"TWICE AS M[illegible]HINGS AT YOUR FI[illegible]TIPS"

"LOW[illegible]ATING CO[illegible] [illegible]ON-WIDE [illegible] [illegible]TER TEST[illegible]

"ILLUMINATED RAD[illegible]E TEM-PERATURE CONT[illegible]L"

"NEW[illegible]E EXPEL[illegible] —NO M[illegible]—NO MU[illegible]

"TWO-FIFTHS OF ENT[illegible]NTENTS CAN BE REMOVED A[illegible]PLACED WITHOUT OPENING[illegible] FOOD COMPARTM[illegible]

"SELF-S[illegible] CRISPE[illegible] AND [illegible] FRUIT [illegible]"

"RESERVE STORAGE [illegible]TMENT (NONREFRIGERATED) [illegible]DITION TO THE 2[illegible]

"NEW A[illegible]FERENT PI[illegible] TION AN[illegible]RTISING [illegible] THAT W[illegible]E MORE SA[illegible]

SELL SOMETH[illegible]

DIFFERE[illegible] in 19[illegible]

PRINT IN BINDI[illegible]

...Refrigerators have REAL SELLING FEATURES

—not gadgets

N THE ...re refrigerator
its in ...pen the outer door
ban...frigerator and show
met... . . . the exclu-
CONSE... That's the key to
Any pr...an see, in a flash,
outst...provement in home
the p...ty years. Anybody
gives ...igerator 26% more
space ...her refrigerators of
foot ... No cramming. No
hunting ...ifting. No spilling.
y thing...r finger tips. And
worth...*lling features* . . .

26% MO...KLY USABLE SPACE"

**ED BY ...RS OF
EERING ...ENCE
-YEAR ...NTY"**

**"NEW ...LINED BEAUTY THAT
... ON SIGHT"**

**E AS ...HINGS
UR FI...IPS"**

**"LOW...ATING COST PROVED
...ON-WIDE PENNY
...TER TEST"**

**...D RADI... TEM-
... CONT...AL"**

**"NEW ...E EXPELLER
—NO ...—NO MUSS"**

**...OF ENT...TENTS
...VED ...PLACED
...ENING... FOOD
...ARTM...**

**...ELF-S... CRISPER
AND ... FRUIT
...R"**

**...RAGE ...TMENT
...ATED) ...DITION
THE 2...**

**...EW A...FERENT PROMO-
...ON AN...RTISING PLANS
...AT W...E MORE SALES"**

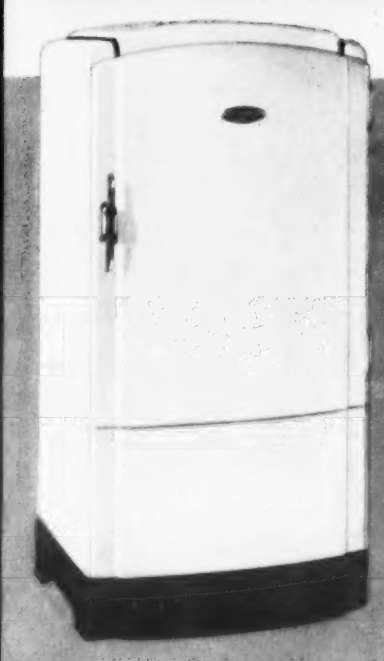
***...SOMETHING
...ERE in 1938***

...RINT IN BINDING

Three new lines meet every prospect's demands, in every selling classification. A Super De luxe line with the *Conservador* . . . a price-leader line . . . and a De luxe line without the Conservador. The new "EL" line without Conservador embodies all the engineering skill that has typified Fairbanks-Morse manufacturing for more than a century.

With this new De luxe line, dealers have an opportunity to supply the requirement of exacting prospects who demand the utmost in quality and performance at a price they would expect to pay for ordinary refrigerators. In addition, there is startling eye appeal and scores of advanced features. Your customers will at once recognize any refrigerator in this De luxe line as an outstanding value!

Models without the CONSERVADOR



Distributor-Dealer Doings

Merchandising Plans Are Discussed by Western Dealers

SAN FRANCISCO—Advantages of handling well-advertised merchandise, ways of stepping-up radio sales, and the ins and outs of appliance financing will be discussed by speakers at the semi-annual Radio and Appliance Trade Dinner to be held here Jan. 26, according to George A. L'Amoreaux, secretary of the program committee and promotion manager of Western Furniture Exchange and Merchandise Mart.

Names and subjects of the three principal speakers scheduled follow:

E. H. Hurley, Jr., president, Hurley Machine division, Electric Household Utilities Corp., Chicago—"How the Sale of Well-Advertised Merchandise Assures Consistent Dealer Profits."

Harry Boyd Brown, national merchandising manager, Philco Radio & Television Corp., Philadelphia—"Stepping-up Radio Sales in 1938."

L. E. Townsend, assistant vice president, Bank of America, San Francisco — "Financing Appliance Sales."

General chairman of the dinner program will be L. B. Quimby, chairman of the radio and appliance advisory board of the mart and manager of the radio and appliance department of Breuner's, in Oakland, Calif. Ernie Smith, west coast sportscaster, will act as master of ceremonies.

Bush Elected President Of Electric and Gas Association

NEW YORK CITY—A. Lincoln Bush, president of the Belmont Electric Co., Inc., was elected president of the Electrical and Gas Association of New York at the organization's annual meeting recently. He succeeds as president C. E. Stephens, vice president of Westinghouse Electric & Mfg. Co.

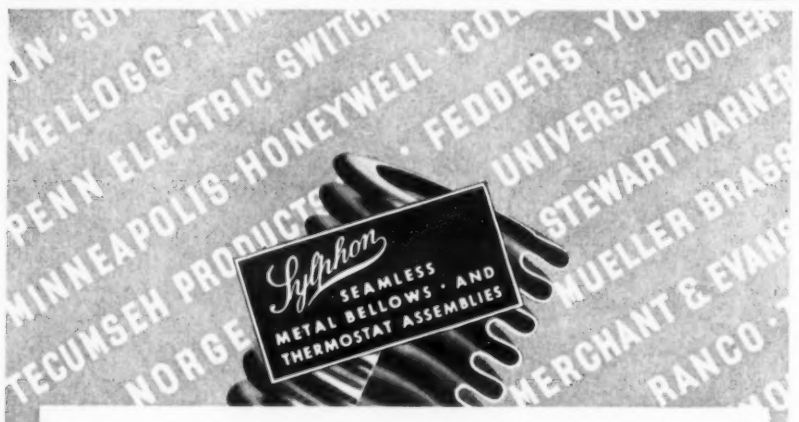
Other officers elected were: first vice president—E. F. Jeffe, vice president, Consolidated Edison Co. of New York, Inc.; second vice president—J. H. McKenna, eastern sales manager, A. J. Lindemann and Hoverson Co.; third vice president—H. H. Cuthrell, vice president, the Brooklyn Union Gas Co.; fourth vice president—D. S. Youngholm, vice president, Westinghouse Electric & Mfg. Co.

Treasurer — P. Schuyler Van Bloem; secretary—S. J. O'Brien, president of S. J. O'Brien Sales Corp.; and assistant secretary, H. C. Calahan, district manager, General Electric Supply Corp.

R. P. Steffey Co. Named Dealer For G-E Line in Charlotte, N. C.

CHARLOTTE, N. C.—R. P. Steffey Co. has been appointed dealer for the full line of General Electric appliances by L. W. Driscoll, Inc., G-E distributor in this territory.

J. J. Kilroy, Jr. is manager of the new dealership.



THEY ALL USE SYLPHON

IT is significant, that, for crankshaft seals, packless glands, thermostat members and at many other vital points in machine and instrument design—the leaders throughout the industry, specify Sylphon Bellows.

They know Sylphon is the *best bellows buy*. They know it will contribute most to the long trouble-free service of their products. They know this seamless, jointless metal diaphragm, originated and pioneered by Fulton Sylphon 35 years ago, has been the subject of more research and development in manufacture and application, than any other product of its kind.

Avail yourself of this plus value that costs you nothing . . . that will pay you well in product acceptance and good will.

The Fulton Sylphon Co.
Knoxville, Tennessee

Geis Succeeds Barger As G-E Distributor In Cincinnati

CINCINNATI—Geis, Inc., has been organized here as distributor in the Cincinnati territory for General Electric Co.'s major appliances, replacing Barger, Inc., whose president, Turner Barger, died recently.

Heading the new distributorship are A. J. Geis, H. W. Macy, and Harry W. Shelby.

Mr. Geis has been with G-E for about 20 years, during which time he was successively auditor of disbursements at Schenectady, financial manager of the appliance and merchandise department at Bridgeport, Conn., and assistant to C. E. Wilson, vice president, at Bridgeport.

Mr. Macy, with G-E for 15 years at Bridgeport, was cashier and paymaster of the appliance and merchandising department for 10 years, and more recently worked with Mr. Geis in handling distributor relationships.

Mr. Shelby for the past five years has been general sales manager of Barger, Inc., and continues in that capacity for Geis, Inc.

Poll Electric Co. to Handle Universal Line

TOLEDO—The H. Poll Electric Co. has been appointed distributor in the Toledo area of Universal electric refrigerators, ranges, and home laundry equipment, manufactured by Landers, Frary & Clark, New Britain, Conn. In addition, the company will distribute Universal's complete line of vacuum cleaners and heating devices.

Henry Poll and E. Groves, representing the Poll organization, recently visited the Universal factory to complete arrangements for the distributorship.

150 Airtemp Distributors Attend Meeting in Dayton

DAYTON—More than 150 distributors of Airtemp, Inc. met Jan. 10 at Hotel Miami for the opening of a five-day convention. Airtemp sales and engineering executives were present at both morning and afternoon sessions. Inspection trips to the Airtemp plant were scheduled for the last two days of the convention. A banquet Jan. 14 concluded the program.

McMann to Distribute Gibson Line in New York City

NEW YORK CITY—R. H. McMann, Inc., has been appointed distributor for Gibson electric refrigerators in the metropolitan territory here, according to R. H. McMann, proprietor of the distributorship.

Star Salesman Joins Staff Of Little Rock Dealer

LITTLE ROCK, Ark.—Mrs. Boyd D. Barker, holder of a Norge diamond ring trophy for selling 100 Norge refrigerators during 1936, has joined the staff of the Home Appliance Co.

8 Distributors Are Named by Leonard

DETROIT—Eight new distributors have been appointed by Leonard division, Nash-Kelvinator Corp., to handle the 1938 Leonard household electric refrigerators.

The distributors are:

Knerr, Inc., Harrisburg, Pa., Charles G. Knerr, president; Delta Hardware Co., Escanaba, Mich., F. J. Earle, secretary; Federal Distributing Co., Kansas City, Mo., G. C. Towle, vice president and general manager; Paramount Radio Shop, Omaha, George Roth, president.

Electric Lamp & Supply Co., St. Louis, Mo., H. S. Hollander, president; Adams Distributing Co., Trenton, N. J., James Adams, Sr., president; Theis, Inc., Wichita, Kan., Charles C. Theis, president; Peaslee-Gaulbert Corp., Oklahoma City, R. E. Peake, vice president.

3 Salesmen Added to Staff Of F. B. Connelly Co.

SEATTLE—Three new specialty salesmen—Perry West, John Stumber, and F. N. Ashford—have been added to the staff of F. B. Connelly Co., Norge distributor in western Washington and Oregon.

Mr. West, well known among local appliance merchants, will head Connelly's Norge sales in the Seattle territory. Mr. Stumberg, a sales promotion specialist who once served as Pacific coast advertising counselor for Cramer-Krasselt advertising agency, will aid Connelly dealers in Portland, Ore. Contact man in southern Oregon will be Mr. Ashford, experienced wholesale promotional man.

Hotpoint Dealer Appointed In Little Rock, Ark.

LITTLE ROCK, Ark.—Southern Electric Co. has opened here as a dealer in Hotpoint household appliances. Leonard E. Ellenbogen is general manager of the firm, and Richard O. Harris is sales manager.

MACHINE MAKERS like ARTIC because its favorable combination of properties permits building compact, light-weight units that operate efficiently and economically.

Service Men like ARTIC because its high purity, wide distribution and ease of handling contribute to convenient, dependable work in recharging Methyl units.

DUPONT

E. I. Du Pont de Nemours & Co., Inc.
THE R. & H. CHEMICALS DEPT.,
Wilmington, Del.

Air

Surveys Sho Types of

Starting on this
are to be found su
installations made in
States for the year

The surveys w
operating power com
is given.

Installations are
were made, and the
rating is shown for e
unless some other n
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The data is pre
(1) all installations
the year 1936; (3)
for all time.

The material is a

Boston

Classification	
Restaurants	
Banks	
Hospitals	
Hotels	
Offices	
Women's Shops	
Men's Stores	
Department Stores	
Food Stores	
Fur Stores	
Shoe Stores	
Jewelry Stores	
Theaters	
Undertakers	
Audition Rooms	
Broadcasting Stations	
Museums	
Auditoriums	
Office Buildings	
Bus Terminals	
Drug Stores	
Reading Rooms	
Liquor Stores	
Candy Shops	
Candy Factories	
Printing Establishments	
Laboratories	
Fur Storage	
Railroads	
Beauty Parlors	
Perfume Stores	
Millinery Stores	
Clock Mfg.	
Florist	
Arsenals	
Dial Hand Mfg.	
Photographer	
Room Coolers	
Residences	
Totals	

Springfield, Mas

(Data Fu

Classification	
Auditoriums	
Banks	
Doctors' & Dentists' Offices	
Funeral Parlors	
Hotels	
Offices, Commercial	
Restaurants, Cafes, & Bars	
Stores, Department	
Stores, Retail	
Theaters	
Residences	
Printing Shops	
Workshops	
Totals	

Hartford, Conn.

(Data Fu

Classification	
Beauty Parlors	
Candy Mfg.	
Cocktail Lounges	
Department Stores	
Furriers	
Hospitals	
Industrial	
Office Buildings	
Offices	
Residences	
Restaurants	
Stores	
Theaters	
Funeral Homes	
Totals	

Air Conditioning

urveys Show Number of Installations by Types of Business in Leading Cities

Starting on this page and on succeeding pages through page 23 to be found surveys showing the number of air-conditioning llations made in the principal population centers of the United es for the year 1937, and for previous years.

The surveys were obtained through the cooperation of the ating power companies serving the various areas for which data ven.

Installations are classified by type of establishment in which they made, and the number of installations with the total horsepower g is shown for each classification. This holds true for all surveys s some other method of classifying or rating the installations dicated in the heading over the columns of figures.

The data is presented under the following standard groupings: all installations made prior to 1936; (2) installations made during year 1936; (3) installations made during 1937; (4) grand total ll time.

The material is arranged in logical geographical groupings.

New England States

ton

ification	Prior To 1936 No.	Hp.	During 1936 No.	Hp.	During 1937 No.	Hp.	Total No.	Hp.
rants	27	772.5	24	382.25	23	286.75	74	1,441.5
	7	48.5	1	12.0	2	7.75	10	68.25
als	1	.5	2	35.5	2	280.0	5	316.0
	15	248.5	5	86.0	3	57.0	23	391.0
	26	481.0	11	112.25	12	116.75	49	710.0
's Shops	2	31.0	5	98.5	11	240.5	18	370.0
Stores	2	50.0	2	22.0	1	12.0	5	84.0
ment Stores	14	2,769.0	4	390.0	0	0.0	18	3,159.0
Stores	3	71.0	0	0.0	0	0.0	3	71.0
tores	5	263.5	0	0.0	0	0.0	5	263.5
Stores	1	3.5	7	44.0	7	53.25	15	100.75
y Stores	1	6.0	3	24.0	0	0.0	4	30.0
rs	14	3,608.5	0	0.0	2	109.5	16	3,718.0
akers	2	13.5	2	13.5	0	0.0	4	27.0
n Rooms	1	1.5	0	0.0	0	0.0	1	1.5
asting Stations	1	33.0	0	0.0	0	0.0	1	33.0
ns	1	1.0	0	0.0	0	0.0	1	1.0
riums	1	28.0	0	0.0	0	0.0	1	28.0
Buildings	0	0.0	4	635.5	1	125.0	5	760.5
erminals	0	0.0	2	45.0	0	0.0	2	45.0
Stores	0	0.0	1	35.0	2	23.0	3	58.0
g Rooms	0	0.0	1	9.0	0	0.0	1	9.0
Stores	0	0.0	1	6.0	0	0.0	1	6.0
Shops	0	0.0	3	4.5	2	9.5	5	14.0
Factories	0	0.0	2	138.0	0	0.0	2	138.0
g Establishments	0	0.0	2	65.0	0	0.0	2	65.0
tories	0	0.0	4	41.5	0	0.0	4	41.5
torage	0	0.0	1	6.0	0	0.0	1	6.0
ds	0	0.0	0	0.0	1	150.0	1	150.0
Parlors	0	0.0	0	0.0	1	8.5	1	8.5
e Stores	0	0.0	0	0.0	1	3.5	1	3.5
ry Stores	0	0.0	0	0.0	1	10.5	1	10.5
Mfg.	0	0.0	0	0.0	1	25.0	1	25.0
	0	0.0	0	0.0	1	6.0	1	6.0
s	0	0.0	0	0.0	1	3.25	1	3.25
and Mfg.	0	0.0	0	0.0	1	3.0	1	3.0
rapher	0	0.0	0	0.0	1	10.0	1	10.0
Coolers	0	0.0	0	0.0	144	108.0	144	108.0
ces	0	0.0	4	3.2	25	32.0	29	35.2
	124	8,430.5	91	2,208.7	246	1,680.75	461	12,319.95

gfield, Mass.

(Data Furnished by United Electric Light Co.)

fication	Prior To 1936 No.	Hp.	During 1936 No.	Hp.	During 1937 No.	Hp.	Total No.	Hp.
iums	0	0	1	39	0	0	1	39
	0	0	1	17	0	0	1	17
& Dentists' Offices	0	0	0	0	5	3.75	5	3.75
Parlors	2	14	0	0	2	3.25	4	17.25
	2	27.5	1	7.5	0	0	3	15
Commercial	6	191	4	16.5	4	8.85	14	217.35
ants, Cafes, & Bars	5	49	3	33	4	34.75	12	116.75
Department	0	0	5	25.5	1	1	6	26.5
Retail	4	36.5	0	0	15	267.75	19	304.25
s	1	235	0	0	1	10	2	245
ces	2	6.5	3	4.5	3	1.75	8	12.75
g Shops	1	18	0	0	0	0	1	18
ops	0	0	2	63	0	0	2	63
	23	577.5	20	206	35	331.1	78	1,114.6

ford, Conn.

(Data Furnished by Hartford Electric Light Co.)

cation	Prior To 1936 No.	Hp.	During 1936 No.	Hp.	During 1937 No.	Hp.	Total No.	Hp.
Parlors	1	7.0	0	0.0	1	2.5	2	9.5
Mfg.	1	2.0	1	3.0	0	0.0	2	5.0
Lounges	1	16.5	0	0.0	0	0.0	1	16.5
ent Stores	2	398.5	0	0.0	2	136.0	4	534.5
	1	34.5	0	0.0	0	0.0	1	34.5
s	2	8.0	0	0.0	3	3.25	5	11.25
al	3	135.0	0	0.0	0	0.0	3	135.0
uildings	2	170.0	2	285.0	0	0.0	4	455.0
	6	11.0	3	2.0	7	15.5	16	28.5
ces	2	3.0	1	3.0	1	0.75	4	6.75
ants	5	53.5	4	40.5	6	47.0	15	141.0
	1	15.0	3	16.5	5	38.0	9	69.5
s	1	167.5	0	0.0	1	28.0	2	195.5
Homes	0	0.0	1	10.0	1	4.0	2	14.0
	28	1,021.5	15	360.0	27	275.0	70	1,656.5

An Air-Conditioning Engineer's Concrete Proposal for a Bureau To Reduce Estimating Costs

By H. Geo. D. Nutting, Air-Conditioning Engineer, Detroit

PRACTICALLY every group of interested or "semi-interested" persons admits that air conditioning, both as an industry and as a social and economic necessity, has come to stay.

It can hardly be claimed that it is still having birth pains, but it must be admitted that it is still in its "swaddling clothes."

Perhaps it is no more so than the plumbing and heating industry, with the exception that plumbing and heating are accepted as necessities, while cooling (which is what most of us think of when we say "air conditioning") is not so generally accepted.

We who are on the "firing line" of the industry are perturbed by the variations of calculated loads and bids on specific jobs. We are embarrassed when a prospect says:

"None of you figure the same load or the same price."

So what?

Do doctors all agree?

Do lawyers all agree?

Do automobile designers all agree?

Do all heating engineers figure the same loads and bid the same price on a job?

Still there is a difference.

Air conditioning is very much in the public eye. It is "on trial." It is touted to be a new and highly exact science, and the public expects it to be weighed out in exact pounds and ounces.

People in the business know why there are variations in loads and bids but, after all, it is the public who has to be sold.

Just because doctors and lawyers and automobile designers don't agree, is no reason why air-conditioning engineers shouldn't. Why not attempt to lift the science of air conditioning above these other sciences, and set a higher standard of performance for air conditioning.

The Problem-Duplication of Effort & High Survey Cost

An indication of the infantile status of air conditioning lies in the present state of inefficiency of sales and engineering.

The present crude methods are really astounding, in these United States, where industrial efficiency is generally so marked.

I refer to the duplication and lost motion involved in the figuring and bidding on prospective air-conditioning installations.

In general, at present, there are two approaches to figuring and bidding a job. Either the bidders are furnished with plans and specifications by the prospect, or the prospect invites a number of contractors to bid on each of the contractor's own specifications.

In the first case the specifications are sometimes drawn up by competent engineers, but more often by a firm of architects who look upon the air-conditioning plans as secondary, and who are seldom competent to design a system.

Sometimes architects permit the specifications to be written by a contractor who is willing to do it for nothing, and who naturally tries to write the specifications around his own equipment and engineering.

This latter method usually falls by its own weight. In a recent case a contractor wrote specifications for an architect at no charge and made them so clouded and ambiguous that the various bidders had to make high estimates to protect themselves.

The result was that the bids were all so high that they were all discarded and some of the bidders were invited to refigure the job on their own specifications. The contractor who wrote the original specifications was not again invited to bid because he had already shown what his specifications were, and so he automatically was eliminated from the picture.

In another similar case the "owner" didn't like the layout offered by the "specification writing contractor," so this contractor was dropped out, and the job went to a "secondary competitor."

Moral to contractors: if you don't want your head cut off don't put your neck out.

Apologizing for the use of the vernacular, I may say that, at the present time, in general, air-conditioning contractors are "a bunch of suckers." I believe most of them will agree with me.

Here's what is happening:

Anyone who opines he might consider installing air conditioning, invites about 10 contractors to give him a price. Each contractor grabs hook, line, sinker, rod, and reel, pays for several days' work of a better than average engineer to estimate the job, turns in his bid and waits.

Then he calls again and educates the prospect on some of the fine points, which points the prospect promptly uses on the next contractor

(Continued on Page 16, Column 1)

Providence, R. I.

(Data Compiled by The Narragansett Electric Co.)

Classification	Prior To 1936 No.	Hp.	During 1936 No.	Hp.	During 1937 No.	Hp.	Total No.	Hp.
Hotels	4	24.37	2	72	0	0	6	96.37
Offices	1	3.25	2	2.66	2	24.41	5	30.32
Residences	2	4.92	3	4	1	7.5	6	16.42
Restaurants	5	59.5	5	100.75	1	3.75	11	164.0
Shoe Stores	1	16	0	0	5	32.3	6	48.3
Clothing Stores	0	0	2	23	3	42.75	5	65.75
Jewelry Stores	1	11	1	7	1	1	3	19.0
Broadcasting Studios	0	0	1	11	0	0	1	11
Funeral Parlors	1	9.5	0	0	1	8.25	2	17.75
Department Stores	2	78	2	125	1	53	5	256.0
Drug Stores	1	3.25	0	0	2	6.75	3	10.0
Miscellaneous	0	0	2	2.66	0	0	2	2.66
Theaters	3	630	0	0	1	50	4	680.0
Candy Stores	0	0	0	0	1	1.65	1	1.65
Banks	0	0	0	0	2	104	2	104.0
Totals	**21**	**839.79**	**20**	**348.07**	**21**	**335.36**	**62**	**1,523.22**

Pawtucket, R. I.

(Data Furnished by Blackstone Valley Gas & Electric Co.)

Classification	Prior To 1936 No.	Hp.	During 1936 No.	Hp.	During 1937 No.	Hp.	Total No.	Hp.
Stores, Retail	4	100.0	0	0	1	3	5	103.0
Bank	1	7.5	0	0	0	0	1	7.5
Utility Office	0	0	0	0	1	20	1	20.0
Funeral Home	0	0	0	0	1	10	1	10.0
Totals	**5**	**107.5**	**0**	**0**	**3**	**33**	**8**	**140.5**

Manchester, N H.

(Compiled by Public Service Co. of New Hampshire)

Classification	Prior To 1936 No.	Hp.	During 1936 No.	Hp.	During 1937 No.	Hp.	Total No.	Hp.
Banks	0	0	0	0	1	31.25	1	31.25
Theaters	2	26.45	1	23	0	0	3	49.45
Restaurants	2	19	0	0	0	0	2	19
Offices	1	8.5	2	1.75	4	5	7	15.25
Industrial	3	4.75	1	22	0	0	4	26.75
Residence (room cooler)	0	0	0	0	2	3.5	2	3.5
Totals	**8**	**58.7**	**4**	**46.75**	**7**	**39.75**	**19**	**145.20**

1 2 3 4 5 6 7 **8** 9 10 11 12 13 14 15

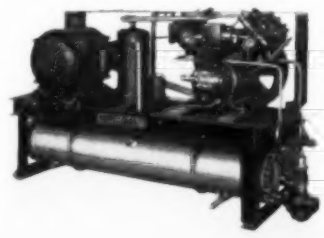
No. 8 of a Series of Curtis Advanced Engineering Features.

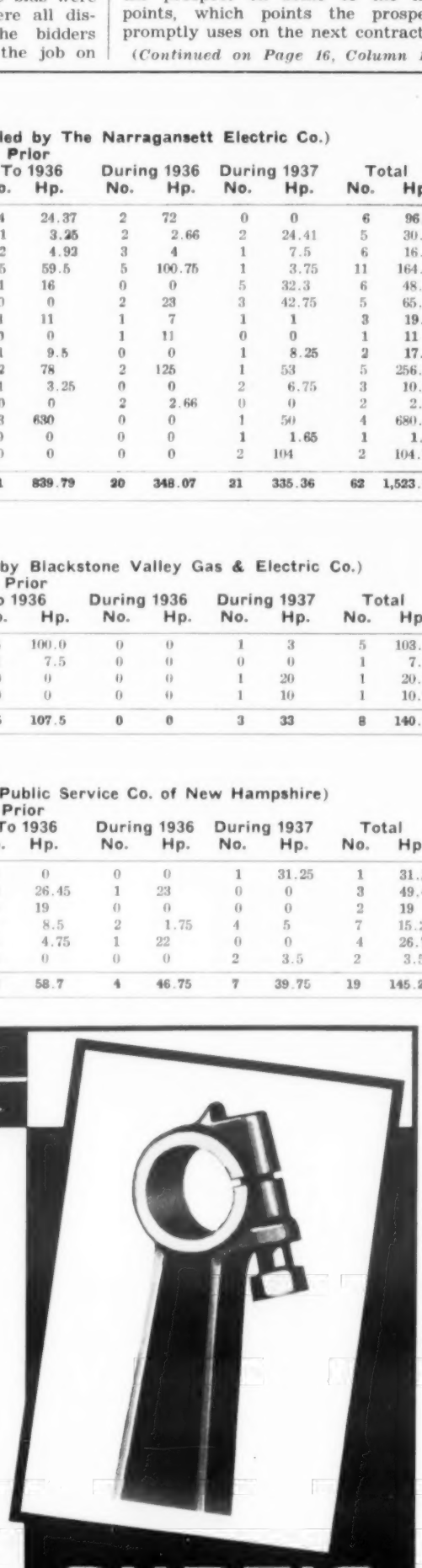
CURTIS Piston Pin Clamps Prevent Wear and Reduce Vibration

A small yet important detail, is the Curtis practice of using a split connecting rod with clamp lock construction that holds the pin in perfect alignment. This effectively prevents undue movement of the pin, reduces wear on pin and cylinder wall, lessens noise and vibration. The Curtis pin itself is hollow, of heat treated alloy steel, ground to precision limits.

Such engineering refinements and attention to details have made possible the Curtis record of trouble-free, efficient and economical performance — proven year after year in thousands of installations. There's a Curtis compressor and condensing unit for every requirement, from 1 6 h. p. to 30 h. p.

Write to Curtis today for complete information.





CURTIS

"Builders of Condensing Units Since 1922"

CURTIS REFRIGERATING MACHINE CO.
Division of Curtis Manufacturing Co.
1912 KIENLEN AVENUE ST. LOUIS, MO.

Represented in Canada by
Canadian Curtis Refrigeration Co., Ltd.
20 George St., Hamilton, Ont., Can.

'Survey Bureau' Plan Would Be Open to Contractor & Owner

(*Continued from Page 15, Column 5*)

calling, to show he knows all about air conditioning and incidentally to beat down the price, and so on ad infinitum.

Then finally Mr. Prospect says:

"The prices are all too high. I decided to wait till next year. There will be lots of improvements and prices will be lower."

Result: 10 contractors have each spent anywhere from $50 to $1,000 to render a service to a "prospect" who was simply curious to know what a job would cost. And we "suckers" fell for it because we feared the job **might** go through and we wouldn't be in on it.

Who pays? The answer is simple. The "prospect" who finally puts in a job pays. In a portion of the cases the contractor who goes into the business, loses his shirt in a year or two, and then drops out, pays. Even in this case the "owner" ultimately pays, because he buys the job lower than it costs the contractor, and the contractor skimps the job, goes out of business, and the owner is left holding the bag.

What has been said above is nothing new to any air-conditioning contractor. Every man in the business will say "Amen!"

But what to do about it? The writer believes this lost motion can be eliminated. It is not easy but it can be done. It is being done in some places, but it should be done throughout the country.

How?

The suggestions made here are not new. They simply record another vote for action. REFRIGERATION NEWS and other papers have mentioned it a number of times. The answer is the central "clearing house" or "quantity surveyor."

Suggested Solution— Quantity Surveyor Plan

In England the "quantity surveyor" is a definite part of the building industry. He makes up a list of quantities of brick, concrete, steel, etc. from the plans and specifications and furnishes them to the various contractors bidding on the job.

But the air-conditioning survey calls for more than a list of quantities. It calls for an estimate of the load and a layout showing the size and locations of ducts and outlets (or of unit coolers), and status of electric power wiring, steam, water, and sewerage piping. It requires consideration of the effect upon the decorations, cutting and patching, location of the equipment, and size of the equipment.

As mentioned before plans and specifications are usually not provided by the owners, so it becomes incumbent upon the various bidding contractors to provide their own.

In view of this, why not have the fundamental quantities determined by one "survey bureau" at one cost instead of by 10 contractors at 10 times the cost?

Such a survey bureau can be established in each community (certainly in each large city) either by a group of contractors, by the Air Conditioning Manufacturers Association, or by an individual firm of engineers.

The writer believes it can best be established by a private engineering firm whose competence is accepted and unquestioned.

Anyone wanting a "survey" on a prospective job would approach the bureau on the subject.

For example: suppose an "owner" wants a survey including complete plans and specifications. He would arrange it just as he does now. He employs the engineering bureau and pays them their fee.

Suppose a **contractor** wants a survey of a particular job with which he has come into contact. He contacts the "bureau" and requests a survey of this job. The "bureau" does not give him the name of any other contractor who has requested a survey and does not at first tell him how many others have requested it. The bureau says:

"This job will cost (say) $500 to survey (based upon say 5% of the roughly estimated price of the job). You will have to make a deposit of one fifth of the estimated survey

(*Concluded on Page 17, Column 1*)

Middle Atlantic States

New York, N. Y., (Manhattan & The Bronx)

(Data Furnished by Consolidated Edison Co. of New York, Inc.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Banks	21	2,957.0	4	341.33	7	372	32	3,670.33
Barber Shops	2	125.3	0	0.0	0	0.0	2	125.3
Beauty Parlors	2	12.2	2	37.75	2	76.25	6	126.20
Offices	174	9,180.4	26	876.45	41	1,613.53	241	11,670.38
Stores, Dept.	0	0.0	0	0.0	6	1,437.8	6	1,437.8
Stores, Retail	104	5,725.31	59	1,694.4	55	984.25	218	8,403.96
Clubs	6	87.25	2	50.25	3	76.66	11	214.16
Industrial	18	487.75	20	557.03	20	149.03	58	1,193.81
Office Buildings	2	370.0	1	67.0	5	893.66	8	1,330.66
Residential	33	103.3	5	20.33	8	20.25	46	143.88
Restaurants	167	6,757.63	90	2,556.09	86	2,587.31	343	11,901.03
Showrooms	12	90.5	26	981.76	41	902.85	79	1,975.11
Theaters	71	14,575.0	8	344.9	25	2,134.1	104	17,054.00
Hospitals	0	0.0	1	50.0	3*	47.00	4	97.00
Dance Studios	0	0.0	2	148.4	1	160.0	3	308.4
Hotel Guest Rooms	18	2,277.0	2	170.33	1	315.0	21	2,762.33
Hotel Coffee Shops and Dining Rooms	0	0.0	0	0.0	21	781.24	21	781.24
Radio Studios	5	2,086.0	1	10.0	1	75.0	7	2,171.00
Pullman Terminals	0	0.0	1	240.0	0	0.0	1	240.0
R. R. Trains (pre-coolers)	0	0.0	0	0.0	2	1,340.0	2	1,340.0
Auditorium	0	0.0	1	136.0	0	0.0	1	136.0
Apartment Building	0	0.0	0	0.0	1	231.0	1	231.0
Libraries and Museums	0	0.0	0	0.0	1	250.0	1	250.0
Funeral Parlors	0	0.0	0	0.0	1	30	1	30.0
Miscellaneous	34	2,077.7	0	0.0	4	153.82	38	2,231.52
Totals	**669**	**46,912.34**	**251**	**8,282.02**	**335**	**14,630.75**	**1,255**	**69,825.11**

*One is a dog and cat hospital.

Brooklyn, N. Y.

(Data Furnished by Brooklyn Edison Co., Inc.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Bakery	2	5	0	0	0	0	2	5
Banks	4	653.65	2	51	2	122.5	8	827.15
Brooklyn Edison Offices	0	0	0	0	9	247.5	9	247.5
Beauty Parlor	1	3.2	2	25*	0	0	3	28.2
Book Shop	0	0	1	*	1	0	1	0
Department Store	4	1,972	0	1,100†	2	500	6	3,572
Candy Shop	0	0	2	3.4	0	0	2	3.4
Dress Shop	8	109.5	5	68	0	0	13	177.5
Cosmetic Shop	0	0	1	*	0	0	1	0
Drug Store	1	6.4	0	0	0	0	1	6.4
Electrical Store	1	6.55	0	0	0	0	1	6.55
Funeral Parlor	3	49.2	1	110	0	0	4	159.2
Furrier	1	1.5	0	0	0	0	1	1.5
Governmental	0	0	2	280.5	0	0	2	280.5
Hospital	1	.6	0	0	1	2.1	2	2.7
Cocktail Lounge	0	0	1	7.5	0	0	1	7.5
Liquor Store	2	9.5	0	0	0	0	2	9.5
Men's Furnishings	2	6.4	6	44.9*	0	0	8	51.3
Physicians' Offices	8	13.25	0	0	3	12	11	25.25
General Offices	7	207.2	1	*	0	0	8	207.2
Private Offices	12	18.06	1	1.05	3	9	16	28.11
Podiatrist	0	0	1	*	0	0	1	0
Residences	11	19.9	0	0	3	3.7	14	23.6
Restaurants	10	231.6	8	242.25	5	123	23	596.85
Shoe Stores	8	77.75	3	*	0	0	11	77.75
Theaters	35	6,071.5	12	519.5	6	182.5	53	6,773.5
Industrial	20	859.25	3	10.1	2	60	25	929.35
Opticians	0	0	0	0	1	2	1	2
Photographic Studios	0	0	0	0	1	6	1	6
Retail Stores**	0	0	0	0	18	121.65	18	121.65
Totals	**141**	**10,319.13**	**52**	**2,463.20**	**57**	**1,391.95**	**250**	**14,174.28**

*Includes stores where building owner supplies tenant. Total hp. 45, with no split made for load of each store.
†Addition to existing system.
**In 1937 tabulation no breakdown made on classification of retail stores.

Rochester, N. Y.

(Compiled by Rochester Gas and Electric Corp.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Office Buildings	1	188	1*	40	1*	33	2	261
Industrial	12	22,285	3*	1,257.75	8*	1,952.25	17	25,495
Offices	8	75.5	4*	14	8*	20.25	20	109.75
Theaters	4	1,274	0	0	1	50	5	1,324
Restaurants	7	187.5	8	113.75	4*	54.50	18	355.75
Hotels	3	79	0	0	1	8.50	4	87.50
Stores	7	425.25	6	156.25	9*	78.25	21	659.75
Radio Studios	1	4	0	0	1*	9	1	13
Libraries	1	265	0	0	0	0	1	265
Banks	4	118.75	1	50.75	1*	39	5	208.50
Funeral Homes	0	0	1	3.5	1	9	2	12.50
Newspapers	1	112.75	0	0	2*	95	2	207.75
Telephone Exchanges	2	32.75	3*	44.5	1*	9	3	86.25
Residences	11	21.25	10	17.5	9	14.25	30	53
Hospitals	0	0	1	1	0	0	1	1
Municipal Buildings	0	0	1	3.75	0	0	1	3.75
Beauty Parlors and Barber Shops	0	0	0	0	3	37	3	37
Totals	**62**	**25,068.75**	**39**	**1,702.75**	**50**	**2,409**	**136**	**29,180.50**

*One or more of these installations is an addition to previous equipment.

Syracuse, N. Y.

(Data Furnished by Niagara Hudson Public Service Corp.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Funeral Home	0	0.0	1	18.0	0	0.0	1	18.0
Industrial Applications								
Bakery	0	0.0	1	12.0	0	0.0	1	12.0
Candy Manufacturing	1	19.0	0	0.0	0	0.0	1	19.0
Fruit Processing	2	51.0	0	0.0	1	8.0	3	59.0
Printing Establishment	1	152.5	0	0.0	0	0.0	1	152.5
Office Building	1	31.75	0	0.0	0	0.0	1	31.75
Offices	4	4.0	2	3.33	2	8.0	8	15.33
Residences	0	0.0	1	1.75	3	9.0	4	10.75
Restaurants & Bars	1	60.0	5	146.5	4	72.5	10	279.0
Stores, Dept. & Retail	6	159.5	7	82.0	10	87.2	23	328.7
Studio, Broadcasting	1	3.25	0	0.0	1	9.0	2	12.25
Theaters	4	825.0	0	0.0	1	40.0	5	865.0
Totals	**21**	**1,306.0**	**17**	**263.58**	**22**	**233.7**	**60**	**1,803.28**

Newark, N. J. and Vicinity

(Compiled by Public Service Electric and Gas Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Theaters	17	3,756	1	150	3	188.5	21	4,094.5
Banks	6	474	2	50.5	4	116.2	12	640.7
Offices	39	366.9	12	153	35	334.8	86	854.7
Restaurants	21	345.6	13	224.8	26	393.4	60	963.9
Stores	27	327.4	32	552.2	51	756.8	110	1,636.4
Tap Rooms & Bars	3	16	3	68.5	0	0.0	6	84.5
Funeral Parlors	7	69.2	4	29	8	48.6	19	136.8
Residences	35	88.8	6	16.8	20	59.2	61	164.8
Beauty Parlors	1	10.2	2	6	12	345.1	15	361.3
Hospitals	0	0	2	142.5	1	27.2	3	169.7
Miscellaneous	0	0	1	3.1	4	311.0	5	314.1
Totals	**156**	**5,454.1**	**78**	**1,396.5**	**164**	**2,580.8**	**398**	**9,421.4**

Asbury Park, N. J.

(Data Furnished by Jersey Central Power & Light Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Millinery Shops	0	0.0	1	2.0	0	0.0	1	2.0
Offices	0	0.0	2	2.0	0	0.0	2	2.0
Private Homes	0	0.0	2	1.5	3	3.5	5	5.5
Restaurants	0	0.0	2	15.0	0	0.0	2	15.0
Totals	**0**	**0.0**	**7**	**20.5**	**3**	**3.5**	**10**	**24.5**

Philadelphia, Pa.

(Data Furnished by Philadelphia Electric Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Residential								
Apartments	7	5.0	6	8.2	4	5	17	18.2
Apartment Houses	0	0	0	0	1	5.5	1	5.5
Private Homes	64	140.0	27	48.27	54	62.3	145	250.57
Commercial								
Banks	4	435.0	1	6.5	1	.75	6	442.25
Clubs	1	3.0	1	24.0	0	0.0	2	27.0
Doctors' & Dentists' Offices	10	24.0	3	8.3	10	10.8	23	43.1
Funeral Parlors	7	53.0	4	58.3	8	99.3	19	210.6
Hospital Operating Rooms	1	95.0	0	0.0	3	65	4	160
Hospital Bedrooms	3	38.0	1	0.75	1	3.0	5	41.75
Hotel Guest Rooms	0	0.0	1	4.0	0	0.0	1	4.0
Offices	56	475.0	47	554.55	50	514.1	153	1,543.65
Studios, Broadcasting	2	107.0	0	0.0	2	240.2	4	347.2
Utility Company Offices	5	261.0	0	0.0	2	160.5	7	421.5
Barber Shops	2	2.0	2	2.75	0	0.0	4	4.75
Beauty Shops	0	0.0	3	53.75	1	45.0	4	98.75
Hotel Dining Rooms	6	193.0	0	0.0	1	93.0	7	286.0
Office Buildings	1	2,625.0	0	0.0	0	0.0	1	2,625.0
Restaurants	41	1,502.0	17	601.3	8	308.1	66	2,411.4
Stores, Department	2	1,768.0	0	0.0	1	2,350.0	3	4,118.0
Stores, Retail	40	1,388.0	29	1,014.85	48	867.7	117	3,210.55
Theaters	38	4,973.0	19	945.8	27	1,571.7	84	7,490.5
Auditoriums	2	563.0	0	0.0	0	0.0	2	563.0
Churches	1	6.0	0	0.0	0	0.0	1	6.0
Libraries & Museums	2	140.0	0	0.0	0	0.0	2	140.0
Schools	28	498.0	2	23.3	15	488	45	1,009.3
Misc. Commercial	4	2,052.0	2	3.0	4	488	10	2,543
Industrial								
Bakeries	8	304.0	0	65.6	0	0.0	8	369.6
Candy Manufacturing	16	1,238.0	3	92.0	1	403.5	20	1,733.5
Chemists	9	105.0	0	215.0	11	23	10	343
Leather Manufacturing	2	238.0	0	0.0	0	0.0	2	238.0
Printing & Lithographing	7	271.0	0	0.0	1	180	7	271
Textile Manufacturing	15	868.0	2	208.0	2	65.0	19	1,141.0
Tobacco Factories	8	1,002.0	2	98.0	1	43.5	11	1,143.5
Dairy Products	0	0.0	1	60.0	1	11.0	2	71.0
Fruit Packing Houses	2	42.0	0	0.0	1	15	3	57
Fur Storage	2	39.0	1	5.5	0	0.0	3	44.5
Misc. Industrial	14	513.0	2	97.0	8	538.0	24	1,148.0
Totals	**410**	**21,966**	**176**	**4,198.62**	**257**	**8,656.95**	**843**	**34,821.57**

Pittsburgh, Pa.

(Compiled by Duquesne Light Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Banks	1	500	0	0	0	0	1	500
Barber Shops	2	14	1	2.50	0	0	3	16.50
Beauty Shops	4	55.50	2	8.50	3	28.50	9	92.50
Combination Barber and Beauty Shop	1	18	0	0	0	0	1	18
Clubs, Restaurants and Tap Rooms	1	7	1	1	3	22	5	30
Guest Rooms	0	0	1	.75	2	1.50	3	2.25
Other Places	0	0	0	0	1	9	1	9
Candy Stores	0	0	10	16	4	9.50	14	25.50
Dairy Stores	4	29	0	0	0	0	4	29
Department Stores	1	590	1	1,115	3	1,993.50	5	3,698.50
Drug Stores	0	0	0	0	8	120.25	8	120.25
Funeral Parlors	1	7	3	18	2	14.50	6	39.50
Hospitals	0	0	2	1.50	2	6.25	4	7.75
Hotels								
Coffee Shops & Dining Rooms	3	73	4	210	3	50	10	333
Tap Rooms	2	25	5	77	0	0	7	102
Ballrooms	1	30	0	0	0	0	1	30
Guest Rooms & Offices	4	4	1	1	3	2.25	8	7.25
Offices (Gen. & Private)	50	172.75	29	192	67	433.75	146	798.50
Offices (Doctor's)	8	9.75	4	5.75	11	7.50	23	23
Residential	37	46.25	26	41.50	43	57.75	106	145.50
Restaurants & Cafeterias	19	574.50	10	172.50	17	212.50	46	959.50
Stores (Misc.)	24	232.75	9	384.50	23	482.25	56	1,099.50
Theaters	9	2,547	2	78	9	389.50	20	3,014.50
Industrial	10	609	4	33.50	4	49.50	18	692
Miscellaneous	3	69	3	11	5	230.25	11	310.25
Totals	**185**	**5,613.50**	**118**	**2,370**	**213**	**4,120.25**	**516**	**12,103.75**

Johnstown, Pa.

(Data Furnished by Pennsylvania Electric Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Offices	1	3	0	0	0	0	1	3
Stores	0	0	4	30.75	4	307	8	337.75
Theaters	0	0	0	0	1	18	1	18
Totals	**1**	**3**	**4**	**30.75**	**5**	**325**	**10**	**358.75**

Many Benefits Seen By Engineer in Plan For a 'Single' Survey

(Concluded from Page 16, Column 1)

cost. You may add our total cost of the survey to your bid, in which case the "owner" pays it eventually, if the job goes through. If the job does not go through you will have to pay your share of the survey cost determined by dividing the total survey cost by the number of contractors to whom the survey is furnished. Any deposit already made will be credited to your account."

This is about all there is to the suggested plan. Doubtless some complications will arise but they shouldn't be insurmountable, particularly in view of the large savings realizable.

Principal Benefits Are Lower Cost, Time Saving

Benefits of this plan are principally as follows:

1. The cost to each contractor of surveying a job will approximate 10% of what it now costs him. This is based upon an average of 10 bidders for each job. At present each bidder pays the full cost of the survey.

2. The owner will be contacted (at first) only by the engineers from the one survey bureau, thus conserving the owner's time and eliminating 15 or 20 engineers on one job.

3. The survey bureau will really operate as the owner's engineers, inasmuch as he is eventually paying for it by virtue of the survey cost being added to the bid. The owner should be sold on this idea and can be shown that he is getting a valuable engineering service for which he must expect to pay.

If he is not willing to accept this situation, he isn't interested enough in air conditioning to indicate that he intends to install it, and no one can afford to waste time on it. If a border line job is under consideration the bureau can ascertain if enough contractors are interested in paying their share of the cost of a survey to justify going ahead with it.

4. The bureau will furnish the same tonnage requirements and the same layout to all bidders. If a bidder wishes to modify the layout to take advantage of some particular feature of his equipment, he can easily do so, at a minimum of engineering expense.

Every contractor will at once appreciate the benefit of all bidders figuring on at least the same tonnage. This will increase the confidence of the public in air conditioning.

5. The consumer price of air conditioning will be reduced, thus increasing sales, inasmuch as engineering overhead cost will be definitely lowered.

6. Time and money will be saved by power companies, for in most cases electrical data need be determined only once and given only to the survey bureau. The same applies to water and sewerage data, and to inspection requirements.

7. In most cases sub-contractor's bids can be turned in to the survey bureau and transmitted to the principal contractor. Any principal contractor is always at liberty to obtain additional sub-contractor bids if he chooses.

8. This method will eliminate "curbstone" contractors and put the whole business on a more substantial organized basis. At first blush it might be assumed that it would increase the number of bidders on a given job inasmuch as "anyone" requesting a survey can get it.

The answer to this is that a survey bureau would have no reason for giving out surveys promiscuously unless a majority of their regular subscribers approved it. Besides it would be beneficial for "curbstone" contractors to have the real facts so that they will not under-bid jobs due to lack of knowledge of the load requirements.

Few "owners" will buy air conditioning from anyone except well established reliable concerns, and they will always be bidding on a job anyway.

The survey bureau will not assist the "owner" in deciding which bid to accept. It is essential that no representative of the bureau at any time give out any information on the comparative value of the various equipments offered.

East North Central States

Cincinnati, Ohio

(Compiled by Cincinnati Gas & Electric Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Residential	71	109.75	70	100.75	76	102.25	217	312.75
Offices	78	930.25	38	582.25	62	521.50	178	2,034
Small Stores	24	348.50	21	183.75	16	101.25	61	633.50
Large Stores	8	1,924	1	82	7	914	16	2,920
Restaurants	25	715.50	26	366.50	12	743	63	1,825
Theaters	16	2,118	8	290	7	188	31	2,596
Miscellaneous	23	1,840.25	8	87.75	8	393.50	39	2,321.50
Totals	**245**	**7,986.25**	**172**	**1,693**	**188**	**2,963.50**	**605**	**12,642.75**

Toledo, Ohio

(Compiled by Toledo Edison Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.†
Banks	1	268	0	0	0	0	1	268
Barber Shops	1	3	0	0	0	0	1	3
Factories*	5	293	3	120	8	199	16	612
Funeral Parlors	8	56	1	8	1	6	10	70
Hotels	3	167	1	17	2	24	6	208
Offices	11	74	10	112	6	60	27	246
Residences	10	17	4	6	10	35	24	58
Restaurants	2	34	11	216	6	47	19	297
Stores	4	104	14	457	5	37	23	598
Theaters	3	930	4	277	1	21	8	1,228
Miscellaneous	3	17	0	0	1	3	4	20
Totals	**51**	**1,963**	**48**	**1,213**	**40**	**432**	**139**	**3,608**

*Factory jobs include both process and comfort installations.
†Includes several deep well jobs.

Akron, Ohio

(Compiled by Ohio Edison Co., Akron Division)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Candy Company	1	5	0	0	0	0	1	5
Clubs	0	0	0	0	3	51.29	3	51.29
Department Stores								
Candy Kitchen	1	.5	0	0	0	0	1	.5
Executive Offices	2	.5	0	0	0	0	2	.5
Funeral Parlors	0	0	1	7	1	16.5	2	23.5
Hotels								
Coffee Shop, Dining Room, Barber Shop	1	75	0	0	0	0	1	75
Guest Room	0	0	1	1	0	0	1	1
Residences	3	4.5	3	1.75	1	3.0	7	9.25
Restaurants	3	38	4	43.9	5	49.25	12	131.15
Stores								
Drug	0	0	0	0	1	53.25	1	53.25
Shoe	2	23.5	0	0	1	6	3	29.5
Clothing	3	26.25	3	46	0	0	6	72.25
Fur	1	.5	0	0	0	0	1	.5
Music Store	1	6	0	0	1	22	2	28
Dairy Store	0	0	1	5.5	0	0	1	5.5
Optical Store	0	0	0	0	1	2	1	2
Furniture	0	0	0	0	1	20	1	20
Beauty Shop	0	0	0	0	1	7.5	1	7.5
Offices	3	11	6	20.5	3	15.25	12	46.75
Theaters	2	500	1	30	2	209	5	739
Miscellaneous	1	25	2	20	0	0	3	45
Totals	**24**	**715.75**	**22**	**175.65**	**21**	**455.04**	**67**	**1,346.44**

Indianapolis, Ind. and Vicinity

(Compiled by Indianapolis Power & Light Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Banks	1	45.25	0	0	0	0	1	45.25
Barber Shops and Beauty Shops	1	5.25	1	2	2	3.6	4	10.85
Churches	1	15	1	20.5	0	0	2	35.5
Club Rooms	1	11.5	0	0	0	0	1	11.5
Funeral Homes	1	6.5	1	5.25	6	49	8	60.75
Hospitals	1	3.5	1	18	1	69.3	3	90.8
Industrial Applications								
Baking	0	0	0	0	1	8	1	8
Candy Manufacture	1	10	0	0	0	0	1	10
Dairy	2	27	0	0	1	10	3	37
Miscellaneous	4	624.5	0	35*	0	0	4	660
Laboratories	1	65	1	14	0	0	2	79
Libraries	0	0	1	15.25	0	0	1	15.25
Offices								
General	6	204.58	7	125.25	14	223	27	552.83
Private	7	12.25	21	19.16	16	16.1	44	47.51
Residences	22	58.5	26	46.25	23	36.75	71	141.5
Restaurants and Bars	18	343	8	104.25	5	100	31	547.25
Stores								
Clothing & Dept.	6	1,656.5	5	446	4	413.5	15	2,516
Confectionery	1	20	1	5.5	1	1.5	3	27
Fur	1	4.5	0	0	0*	10.5	1	15
Food	0	0	1	2.25	0	0	1	2.25
Jewelry	1	3	2	22.5	2	21	5	46.5
Cosmetic	0	0	0	0	1	3	1	3
Shoe	0	0	1	5.75	3	29.25	4	35
Studios	1	2.5	1	3.75	0*	9	2	15.25
Theaters								
Electric Refrigeration	2	465.5	0	0	2	51	4	516.5
Well Water	7	517.5	0*	10	12	245	19	772.5
Totals	**86**	**4,101.83**	**81**	**901.66**	**100**	**1,302.83**	**267**	**6,306.32**

*Indicates addition to present system.

Evansville, Ind.

(Data Furnished by Southern Indiana Gas & Electric Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Offices	6	53.0	3	55.5	4	23.0	13	131.5
Banks	2	52.0	0	0.0	0	0.0	2	52.0
Stores	5	71.0	6	130.4	6	112.0	17	313.4
Restaurants	1	12.0	1	11.5	2	12.0	4	35.5
Funeral Homes	5	82.5	1	11.5	0	0.0	6	94.0
Theaters	7	238.0	0	0.0	1	53.0	8	291.0
Residences	1	1.5	1	2.5	2	14.5	4	18.5
Cocktail Rooms	2	22.0	0	0.0	3	30.0	5	52.0
Miscellaneous	1	10.0	0	0.0	2	7.5	3	17.5
Total	**30**	**542.0**	**12**	**211.4**	**20**	**252.0**	**62**	**1,005.4**

Hammond & East Chicago, Ind.

(Data Furnished by Northern Indiana Public Service Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Offices	2	28	2	25.5	1	3.3	5	56.8
Residences	0	0	1	3.33	1	3.66	2	6.99
Restaurants	1	42.5	0	0	2	13.5	3	56
Stores	0	0	0	0	3	111	3	111
Theaters	2	270	0	0	1*	35	3	305
Totals	**5**	**340.5**	**3**	**28.83**	**8**	**166.46**	**16**	**535.79**

*Part well water.

Chicago, Ill.

(Data Furnished by Commonwealth Edison Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Amusements	0	0	0	0	1	33.0	1	33.0
Banks	8	1,252	2	328	1	5.75	11	1,586.75
Barber Shops	0	0	3	9	1	0.50	4	9.50
Beauty Shops	11	107	3	47	5	19.75	19	174.75
Brokers & Exchanges	9	772	6	110	1	1.0	16	884.0
Churches	4	167	0	0	0	0	4	167
Civic Buildings	1	116	1	150	0	0	2	266
Clubs	4	359	3	87	4	37.50	11	483.50
Dance Halls	4	465	0	0	0	0	4	465
Doctors' & Dentists' Offices	15	10	9	6	25	20.0	49	37.0
Funeral Homes	21	211	12	131	16	248.0	48	582.0
Hospitals	14	90	3	2	5	5.50	22	98.50
Hotels	24	3,553	4	64	5	1,117.50	33	4,735.50
Industrial								
Bakery	19	304	1	50	1	4.50	21	359.50
Candy	28	3,713	11	437	5	177.50	44	4,418.50
Printing	24	2,244	2	20	6	462.75	32	2,728.75
Miscellaneous	28	1,260	10	240	6	626.25	44	2,127.25
General Offices & Bldgs.	86	7,029	58	1,759	62	4,249.25	205	13,037.25
Private Offices	166	321	91	115	127	140.0	384	579.0
Residences	68	124	48	42	57	90.25	173	257.25
Restaurants	139	3,663	66	1,527	103	1,907.50	305	7,020.50
Stores								
Candy	16	35	15	73	7	28.25	37	133.25
Clothing, Dept.	28	1,849	20	1,179	18	442.75	66	3,471.75
Drug	21	294	13	185	21	187.50	55	668.50
Food	7	385	4	63	6	44.50	16	476.50
Fur	8	34	6	48	6	30.75	21	128.75
Shoe	15	128	10	130	27	344.75	52	603.75
Miscellaneous	16	1,142	14	867	21	406.75	51	2,330.75
Studios	5	419	0	0	3	10.0	8	429.0
Theaters	134	18,814	18	1,054	35	1,915.0	185	21,915.0
Totals	**923**	**48,860**	**433**	**8,723**	**575**	**12,556.75**	**1,923**	**70,207**

Rockford, Ill.

(Data Compiled by Central Illinois Electric & Gas Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Residences	*	*	*	*	18	15.4	*	*
Private Offices	*	*	*	*	7	36.08	*	*
Barber & Beauty Shops	*	*	*	*	3	.75	*	*
Taverns	*	*	*	*	2	3.90	*	*
Funeral Parlors	*	*	*	*	1	9	*	*
Hotel Coffee Shop, Dining Room, etc.	*	*	*	*	1	22	*	*
Restaurants	*	*	*	*	5	7	*	*
Department Stores	*	*	*	*	1	3.25	*	*
Retail Stores	*	*	*	*	8	164.75	*	*
Theaters	*	*	*	*	1	26	*	*
Totals	**8**	**36.35**	**17**	**72.25**	**22**	**236.65**	**47**	**355.25**

*Total number of installations for year only are given.

Milwaukee County, Wis.

(Data Furnished by The Milwaukee Electric Railway and Light Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Private Homes	11	31.9	5	12.2	8	12.25	24	56.35
Banks	1	72.5	0	0	0	0	1	72.5
Doctors' Offices	2	2	0	0	3	7.15	5	9.15
Funeral Parlors	5	55	3	32.1	0	0	8	87.1
Office Space	9	34.9	6	41.25	4	29.30	19	105.45
Office Building	4	589.5	1	25	1	12	6	626.50
Studios, Broadcasting	0	0	1	10	0	0	1	10
Utility Co. Offices	1	64	0	0	0	0	1	64
Beauty Parlors	0	0	1	17.75	1	23.80	2	41.55
Hotel Coffee Shop and Dining Rooms	1	87.5	2	86	2	130.50	5	304
Office Space	0	0	0	0	2	110.50	2	110.5
Restaurants	5	141	1	17	3	109	9	267
Cocktail Bars	4	37.75	1	23	4	42.50	9	103.25
Department, etc., Stores	0	0	2	294	1	257.50	3	551.5
Apparel Stores	2	190	4	45.15	12	370.30	18	605.45
Drug Stores	4	89.7	1	18	2	62.50	7	170.2
Food and Candy Stores	0	0	1	1	5	13.40	6	14.4
Miscellaneous	1	3.15	0	0	0	0	1	3.15
Theaters	8	2,142	0	0	0	0	8	2,142
Miscellaneous Commercial	3	25.65	0	0	0	0	3	25.65
Self-Contained Units								
Residential	1	1.05	2	1.1	8	8	11	10.15
Commercial	2	1.55	7	7.5	12	14.5	21	23.55
Totals	**64**	**3,569.15**	**38**	**631.05**	**68**	**1,203.20**	**170**	**5,403.4**

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PLEASANTAIRE
CORPORATION
1623 Conn. Ave. Wash., D. C.

Detroit, Mich.

(Data Furnished by The Detroit Edison Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Offices	67	321.0	46	329.66	59	370.75	172	1,021.41
Physicians' Offices	0	0.0	4	6.25	6	8.5	10	14.75
Osteopathic Physicians' Offices	0	0.0	0	0.0	1	6.0	1	6.0
Dentists' Offices	0	0.0	3	1.25	6	8.75	9	10.0
Office Buildings	3	1,210.0	1	225.0	1	600.0	5	2,035.0
Banks	3	600.0	2	65.0	3	53.25	8	708.25
Restaurants	27	614.5	10	145.75	17	286.0	54	1,046.25
Hotels	7	1,042.0	2	30.0	4	196.0	13	1,268.0
Clubs	1	60.0	1	120.0	1	20.0	3	200.0
Residences	48	106.75	106	113.5	125	140.75	279	361.0
Department Stores	6	5,228.0	4	2,160.0	7	345.0	17	7,733.0
Furniture Stores	1	12.0	1	260.0	0	0.0	2	272.0
Confectionery Stores	9	126.5	5	77.5	8	75.5	22	279.5
Ice Cream Stores	0	0.0	1	15.0	3	35.0	4	50.0
Drug Stores	6	72.0	3	37.5	7	85.0	16	194.5
Cigar Stores	1	3.0	0	0.0	3	21.0	4	24.0
Jewelry Stores	6	58.0	3	17.5	8	80.5	17	156.0
Opticians	2	2.0	0	0.0	2	10.0	4	12.0
Linen Store	0	0.0	0	0.0	1	5.0	1	5.0
Clothing Stores	3	23.0	5	54.0	5	155.5	13	232.5
Women's Apparel	11	142.5	6	115.0	9	52.75	26	310.25
Fur Stores	2	35.0	0	0.0	3	27.25	5	62.25
Shoe Stores	4	12.0	4	84.0	7	81.5	15	177.5
Markets	0	0.0	2	25.0	0	0.0	2	25.0
Auto Accessories Stores	0	0.0	0	0.0	1	7.5	1	7.5
Electric Co. Sales Offices	4	59.0	0	0.0	0	0.0	4	59.0
Radio Stations	2	101.5	2	15.75	1	1.0	5	118.25
Theaters	17	3,715.0	4	195.0	12	970.0	33	4,880.0
Bowling Alleys	0	0.0	2	40.0	1	20.0	3	60.0
Library	1	5.0	0	0.0	0	0.0	1	5.0
Stock Exchange	1	50.0	0	0.0	0	0.0	1	50.0
Stock Brokers	1	75.0	0	0.0	1	25.0	2	100.0
Pawnbrokers	0	0.0	1	2.5	0	0.0	1	2.5
Barber Shops	1	30.0	0	0.0	0	0.0	1	30.0
Beauty Shops	1	5.0	1	7.5	3	20.75	5	33.25
Schools	0	0.0	0	0.0	1	15.0	1	15.0
Hospitals	6	225.83	7	9.5	7	81.5	20	316.83
Undertaking Parlors	5	29.0	4	28.0	4	9.0	13	63.0
Prison	0	0.0	0	0.0	1	1.5	1	1.5
Research Laboratory	1	50.0	0	0.0	0	0.0	1	50.0
Engineering Laboratory	1	630.0	0	0.0	0	0.0	1	630.0
Exhibition Building	1	125.0	0	0.0	0	0.0	1	125.0
Recreation Building	0	0.0	0	0.0	1	200.0	1	200.0
Automotive Mfg.	3	670.0	1	3.0	2	40.0	6	713.0
Spark Plug Mfg.	0	0.0	0	0.0	1	15.0	1	15.0
Roller Bearing Mfg.	1	50.0	0	0.0	0	0.0	1	50.0
Tool Mfg.	0	0.0	1	5.0	0	0.0	1	5.0
Instrument Mfg.	0	0.0	0	0.0	1	3.75	1	3.75
Watch Repairs	0	0.0	0	0.0	1	5.0	1	5.0
Games Mfg.	0	0.0	0	0.0	1	10.0	1	10.0
Refrigerator Mfg.	1	10.0	1	45.0	0	0.0	2	55.0
Rubber Mfg.	2	6.0	0	0.0	0	0.0	2	6.0
Drug Mfg.	5	660.5	0	0.0	1	10.0	6	670.5
Candy Mfg.	4	38.75	0	0.0	0	0.0	4	38.75
Mushroom Growing	1	10.0	0	0.0	0	0.0	1	10.0
Printing & Lithographing	3	26.0	1	0.75	1	25.0	5	51.75
Motion Picture Production	0	0.0	2	15.0	1	15.0	3	30.0
Miscellaneous	0	0.0	0	0.0	3	33.0	3	33.0
Totals	**269**	**16,239.83**	**236**	**4,248.91**	**330**	**4,161.05**	**835**	**24,649.79**

Michigan (Outside of Detroit)

(Data Furnished by Consumers Power Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Industrial	7	123	2	63	5	55	14	241
Theaters	7	465	8	415	30	557	45	1,437
Hotels	5	39.5	2	25	1	15	8	79.5
Restaurants	8	103	9	75.5	12	95.4	29	273.9
Drug Stores	0	0	2	40	6	44	8	88
Test Booths	0	0	1	1.5	0	0	1	1.5
Funeral Homes	2	15	3	17.75	0	0	5	32.75
Offices	31	484.7	13	142.65	14	107.15	58	734.5
Jewelry Stores	0	0	2	9	2	16.75	4	25.75
Stores	7	131	5	180	23	344.7	35	655.7
Department Stores	0	0	1	140	2	266	3	406
Banks	1	3	1	1.25	2	12.75	4	17
Tap Rooms	0	0	1	30	1	3.3	2	33.3
Beauty Parlors	0	0	1	3	2	13.8	3	16.8
Dark Rooms	0	0	1	.75	0	0	1	.75
Residences	11	14	6	4.25	6	14.55	23	32.8
Sanitarium	1	68	0	0	0	0	1	68
Hospitals	0	0	0	0	4	248.3	4	248.3
Laboratories	1	7	0	0	1	47.5	2	54.5
Physicians' Offices	1	.5	0	0	1	1.7	2	2.2
Furriers	1	.5	0	0	1	5.2	2	5.7
Churches	1	30	0	0	0	0	1	30
Miscellaneous	0	0	0	0	3	103	3	103
Totals	**86**	**1,524.2**	**57**	**1,123.65**	**115**	**1,951.10**	**258**	**4,587.95**

DEALERS!...IT'S HERE!

A ROOM COOLER

with Everything but High Price!

GOVERNAIR ROOM COOLER

• Designed IN a hot climate FOR a hot climate; built to fit the moderate budget without sacrifice of quality, efficiency or appearance. Welded steel frame; all standard parts; rubber mountings; walnut cabinet. On ball-bearing rollers for easy moving from one room to another. Cools, ventilates, circulates, dehumidifies and cleanses the air. Low-cost operation . . . and a low first cost that makes every family of average means a prospect!

Dealers and distributors, write or wire today for details of the New Governair room cooler and the attractive profit-making franchise.

GOVERNAIR CORPORATION 603-5 WEST MAIN STREET OKLAHOMA CITY, OKLA

Code Used in Making Preliminary Surveys May Be Difference Between Profit, Loss

By R. C. Bonthron
Air Conditioning Division,
Westinghouse Electric & Mfg. Co.*

THE future of air conditioning depends largely on costs. This is by no means the only factor but should be given special consideration when making the survey.

Too often a salesman is required to make the survey and if he is not of the inquisitive type, a critical survey will not be obtained. The person making the survey cannot be too optimistic. It is most important to get the unfavorable details. It requires careful observation, consideration, and accurate description of the property.

A model investigator is the person of a receptive, impartial mind who can follow a query through and weigh the information secured. He is the most important person contacting the customer. Here is where confidence is established.

Zeal tempered with knowledge and a consideration of the purchaser's interest will place the salesman in a very favorable position when the final decision is made; whereas, an arbitrary attitude or indifferent conduct will be rewarded with ill will.

In making a survey for applying air conditioning the following points should be carefully considered:

For What Is the Room Used?

Obtain this information by observation but definite data must be obtained from the owner. Indicate articles of furniture or permanent fixtures. Commercial establishments, department stores, restaurants, dress shops, etc. are almost always ready and willing to rearrange the room if business requires it. Make a special note of this.

Of greatest importance is the compass point on the layout sketch. A piece of tracing paper should be used to show basement or upper or lower floors. These dimensions must be correct as they determine the cubical contents and are directly related to the air changes required.

The location of the space to be conditioned has a direct bearing on the B.t.u. load, such as the sun effect on roof or the temperature difference due to walls, floors or partitions.

Wall Exposure

Kindly note the word exposure and specify if outside or a partition. There are all sorts and conditions of walls.

Many walls, although similar in appearance, differ greatly and only a thorough investigation will determine the proper transmission factor. The use of the proper factor provides a key to the most economical application.

Indicate Doors on the Master Sketch

If the door or doors are in the outside walls, a note should be made

(*Continued on Page 19, Column 3*)

*From a talk given at East Springfield, Mass.

West North Central States

Minneapolis, Minn.

(Data Furnished by Northern States Power Co.)

Summer Air-Conditioning Installations Using Mechanical Refrigeration

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Restaurants	9	45	9	109	30	317	48	471
Stores	8	39	12	145	30	515	50	699
Offices	29	233	15	74	27	341	71	648
Beauty Parlors	1	2	0	0	4	43	5	45
Mortuaries	1	3	0	0	3	28	4	31
Hotels	0	0	1	20	0	0	1	20
Factories	1	10	5	10	1	3	7	23
Public Buildings	0	0	1	28	0	0	1	28
Banks	0	0	0	0	1	41	1	41
Residences	16	34	33	72	14	21	63	127
Railroad Coaches	1	60	0	0	0	0	1	60
Totals	**66**	**426**	**76**	**458**	**110**	**1,309**	**252**	**2,193**

Summer Air-Conditioning Installations Using Deep Well Water or City Water for Cooling Through Sprays or Counterflow Fin Type Coils

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Restaurants	10	164	15	112	24	188	49	464
Theaters	29	463	7	108	4	48	40	169
Stores	10	195	3	42	2	450	15	687
Offices	5	51	6	274	3	95	14	420
Beauty Parlors	0	0	1	2	1	1	2	3
Mortuaries	5	22	1	3	0	0	6	25
Hotels	2	37	2	5	1	30	5	72
Churches	1	10	1	4	0	0	2	14
Public Buildings	2	119	0	0	1	20	3	139
Banks	2	16	0	0	0	0	2	16
Residences	34	9	8	2	2	7	44	18
Hospitals	0	0	2	1	1	11	3	12
Totals	**100**	**1,086**	**46**	**553**	**39**	**850**	**185**	**2,489**

St. Paul, Minn.

(Data Furnished by Northern States Power Co.)

Summer Air-Conditioning Installations Using Mechanical Refrigeration

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Restaurants	3	32.0	15	183.0	20	188.0	38	403.0
Theaters	0	0.0	1	6.0	0	0.0	1	6.0
Stores	5	34.0	2	6.0	4	25.0	11	65.0
Offices	20	69.0	8	26.0	11	161.0	39	256.0
Beauty Parlors	0	0.0	1	12.0	0	0.0	1	12.0
Barber Shops	0	0.0	0	0.0	1	1.0	1	1.0
Funeral Homes	0	0.0	1	6.0	0	0.0	1	6.0
Hotels	0	0.0	2	24.0	1	2.0	3	26.0
Factories	0	0.0	0	0.0	1	3.0	1	3.0
Residences	24	14.0	15	31.0	9	31.0	48	76.0
Hospitals	0	0.0	1	3.0	3	21.0	4	24.0
Airplanes	0	0.0	1	2.0	0	0.0	1	2.0
Totals	**52**	**149.0**	**47**	**299.0**	**50**	**432.0**	**149**	**880.0**

Summer Air-Conditioning Installations Using Deep Well Water or City Water for Cooling Through Sprays or Counterflow Fin Type Coils

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Restaurants	1	10.0	3	31.0	16	144.0	20	185.0
Theaters	10	270.0	6	103.0	3	40.0	19	413.0
Stores	0	0.0	1	1.0	2	6.0	3	7.0
Offices	1	1.0	1	1.0	1	106.0	3	108.0
Barber Shop	0	0.0	0	0.0	1	1.0	1	1.0
Funeral Homes	0	0.0	1	4.0	1	2.0	2	6.0
Hotels	4	110.0	1	175.0	0	0.0	5	285.0
Churches	0	0.0	0	0.0	1	33.0	1	33.0
Public Buildings	2	50.0	0	0.0	0	0.0	2	50.0
Bank	1	50.0	0	0.0	0	0.0	1	50.0
Residences	0	0.0	4	1.0	1	11.0	5	12.0
Totals	**19**	**491.0**	**17**	**316.0**	**26**	**343.0**	**62**	**1,159.0**

Kansas Electric Power Co. Territory

(Data Furnished by Kansas Electric Power Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Theaters	3	120.0	0	0.0	1	62.5	4	182.5
Hospitals	0	0.0	2	1.5	0	0.0	2	1.5
Offices	2	21.0	2	2.25	7	42.0	11	65.25
Restaurants	3	25.0	1	7.5	5	17.75	9	50.25
Stores	0	0.0	1	7.5	7	74.75	8	82.25
Beauty Parlors	0	0.0	2	10.0	1	9.5	3	19.5
Funeral Homes	2	15.0	0	0.0	2	12.0	4	27.0
Physicians' Offices	2	3.75	0	0.0	3	1.5	5	5.25
Institutions	1	100.0	1	1.5	1	1.5	3	103.0
Residences	5	13.25	3	3.75	4	6.25	12	23.25
Totals	**18**	**298.0**	**12**	**34.0**	**31**	**227.75**	**61**	**559.75**

Wichita, Kan.

(Data Furnished by Kansas Gas & Electric Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Residences & Apartments	62	118.7	41	51.7	39	60.1	142	230.5
Theaters	10	621.0	3	106.0	3	130.0	16	857.0
Restaurants & Cafes	17	168.9	27	163.3	24	72.5	68	404.7
Stores—Retail & Dept.	13	115.4	11	150.3	26	425.5	50	691.2
Offices	32	123.5	45	116.8	17	84.4	94	324.7
Hotels	6	115.3	1	14.0	3	30.5	10	159.8
Drug Stores	2	5.9	4	26.4	8	35.3	14	67.6
Barber & Beauty Shops	4	14.3	3	4.5	11	25.8	18	44.6
Funeral Homes	2	23.5	0	0	2	6.4	4	29.9
Banks	1	80.0	0	0	0	0	1	80.0
Miscellaneous	6	47.4	5	14.2	4	20.8	15	82.4
Utility Co. Stores and Offices	5	61.3	1	120.3	1	132.8	7	314.4
Totals	**160**	**1,495.2**	**141**	**767.5**	**138**	**1,024.1**	**433**	**3,286.8**

SERVEL

COMMERCIAL REFRIGERATION AND AIR CONDITIONING

Whether you need 6 machines or 6,000, Servel's engineers and factory staff will give you prompt, expert service. Write for details to Servel, Inc., Electric Refrigeration and Air Conditioning Division, Evansville, Indiana

Greater St. Louis, Mo.

(Data Furnished by Union Electric Co. of Missouri)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Apartments and Private Homes	196	431.71	197	309.29	258	540.38	651	1,281.38
Apartment Houses	0	0.0	1	21.5	10	205.02	11	226.52
Auditoriums	1	1,780.0	0	0.0	0	0.0	1	1,780.0
Banks	3	80.66	1	63.67	2	159.51	6	303.84
Barber Shops	0	0.0	1	1.67	0	0.0	1	1.67
Beauty Shops	3	7.57	2	11.66	2	10.0	7	29.33
Brokers' Board Rooms	4	15.4	3	38.45	5	255.43	12	447.88
Clubs	4	168.01	4	140.81	3	509.25	11	818.07
Funeral Homes	8	147.24	4	126.17	14	241.39	26	514.8
Hospital Operating Rooms	0	0.0	3	10.3	3	36.08	6	46.38
Hospitals, Patient's Rooms	1	0.04	2	2.07	4	4.32	8	6.92
Hotels, Guest Rooms	0	0.0	1	356.2	9	1,812.13	10	2,168.33
Hotels, Public Rooms	15	832.5	3	102.67	15	450.63	33	1,385.8
Office Buildings, Commercial	2	470.66	4	646.53	15	2,238.69	21	3,355.88
Office Buildings, Power Co.	1	52.01	2	831.33	3	130.37	6	1,013.71
Offices, Commercial*	102	773.96	105	1,257.16	127	1,807.96	334	3,839.08
Offices, Power Co.	7	140.4	0	0.0	2	136.51	9	150.55
Restaurants and Liquor Dispensers	30	969.08	25	310.84	24	551.45	79	1,831.37
Sales & Display Rooms	25	147.08	11	41.63	13	88.24	49	276.95
Stores, Department	0	0.0	2	233.5	0	0.0	2	233.5
Stores, Retail	50	1,388.6	49	2,277.32	62	906.4	161	4,527.32
Studios, Broadcasting	2	18.84	1	118.0	0	0.0	3	136.84
Studios, Other	0	0.0	0	0.0	2	6.83	2	6.83
Theaters	14	4,016.0	14	463.0	5	225.51	34	4,704.51
Miscellaneous	7	1,080.67	4	111.75	4	141.3	15	1,333.72
Industrial Processes	33	1,670 77	10	386.65	19	652.28	62	2,709.72
Totals	**508**	**14,159.05**	**449**	**7,862.17**	**602**	**11,110.43**	**1,559**	**33,131.65**

*Includes doctors' and dentists' Offices.

Kansas City, Mo.

(Data Compiled by Kansas City Power & Light Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Bakeries	3	71.0	0	0.0	0	0.0	3	71.0
Banks	3	14.75	5	127.50	2	14.75	10	157.0
Beauty Shops	5	66.25	3	32.25	7	39.50	15	138.0
Buildings	4	2,792.0	0	0.0	4	1,245.50	8	4,037 5
Drug Stores	5	130.0	2	52.0	2	36.0	9	218.0
General Offices	39	323.75	24	416.75	27	660.5	90	1,401.0
Hospitals	10	11.50	8	50.75	4	46.5	22	108.75
Hotels	11	461.0	4	240.50	4	518.5	19	1,220.0
Industrial & Miscellaneous	8	93.25	9	171.25	5	420.0	22	684.5
Mortuaries	8	54.50	5	106.0	3	89.5	16	250.0
Restaurants & Night Clubs	32	753.50	21	232.50	20	234.66	73	1,220.66
Salesrooms and Shops	32	864.50	16	533.0	25	1,201.75	73	2,599.25
Theaters	23	1,870.0	0	0.0	1	22.5	24	1,892.5
Private Offices	32	38.25	36	53.0	47	67.25	115	158.5
Residences	133	327.75	101	191.75	102	195.5	336	715.0
Totals	**348**	**7,872.0**	**234**	**2,207.25**	**253**	**4,792.5**	**835**	**14,871.66**

St. Joseph, Mo.

(Compiled by St. Joseph Railway, Light, Heat and Power Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Hotels	2	35	1	28	1	12.5	4	48.5
Industrial	1	40	1	15	0	0	2	55
Theaters	2	225	0	0	1	15	3	240
Stores	4	17.5	3	55	5	464.25	12	536.75
Funeral Homes	2	20	0	0	1	20	3	40
Beauty Shops	1	3	2	8.33	3	9.75	6	21.08
Residences	5	4.75	6	19.37	9	14.88	20	39
Banks	1	1	0	0	0	0	1	1
Department Stores	0	0	1	65.5	2	157.5	3	223
Furriers	0	0	1	5.5	1	3	2	8.5
Offices	0	0	2	2.25	3	4.75	5	7
Restaurants	0	0	3	29.58	0	0	3	27.58
Drug Stores	0	0	2	23.5	0	0	2	23.5
Clubs	0	0	0	0	1	28	1	28
Cafes	0	0	3	18	0	0	3	18
Jewelry Stores	0	0	1	3	0	0	1	3
Totals	**18**	**346.25**	**26**	**271.03**	**27**	**729.63**	**71**	**1,319.91**

Des Moines, Iowa

(Compiled by Des Moines Electric Light Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Theaters	5	378.25	9	216.5	3	148.0	17	742.75
Hotels (Dining Room only —no Guest Rooms)	4	146	4	92	0	0	8	238
Restaurants	21	186.25	5	94.3	9	30.18	35	518.73
Apparel Shops	5	53.4	0	0	2	10.75	7	64.15
Dept. Stores	0	0	1	1,111*	1	79	2	1,275
Offices	28	86.5	15	290	34	236.59	77	613.09
Radio Studios	1	15	1	28.8	1	15.75	3	59.5
Residences	15	29.5	17	21.33	22	35.73	54	91.06
Funeral Homes	5	42.3	1	5.5	1	3.25	41	51.05
Stores (Exclusive of Apparel Dept.)	5	159.5	9	363	9	132 63	23	654.93
Industrial	2	37.5	1	1	0	0	3	38.5
Railway Yds. (for cars in Yards)	1	80	0	0	0	0	1	80
Barber & Beauty Shops	2	6.5	2	3.5	6	23.87	10	33.87
Office Bldgs.—Complete	0	0	0	0	3	951.5	3	951.5
Banks	0	0	0	0	1	50.66	1	50.66
Sport Clubs	0	0	1	1.5	3	48.5	4	50.0
Hospitals	0	0	3	17.33	1	.75	4	18.08
Totals	**95**	**1,306**	**69**	**2,245.76**	**96**	**1,764.06**	**259**	**5,335.92**

*Same store.

Sioux City, Iowa

(Data Compiled by Sioux City Gas & Electric Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Offices	12	82.25	6	12.25	4	12.5	22	107
Restaurants	5	48	1	19	3	38	9	105
Theaters	2	425	0	0	0	0	2	425
Stores	5	46.5	13	161.5	0	0	18	208
Department Stores	0	0	0	0	3	619	3	619
Residences	3	8.5	7	8.25	9	17.5	19	34.25
Barber Shops	0	0	3	7.5	1	4	4	11.5
Miscellaneous	23	63	3	24.5	0	0	25	87.5
Hotels	0	0	0	0	3	40	3	40
Apartments	0	0	0	0	2	2	2	2
Beauty Parlors	0	0	0	0	1	1.5	1	1.5
Bank	0	0	0	0	1	11.5	1	11.5
Funeral Homes	0	0	0	0	2	9	2	9
Printing Office	0	0	0	0	1	8.75	1	8.75
Totals	**50**	**673.25**	**33**	**233**	**30**	**763.75**	**112**	**1,670**

Construction Details Must Be Determined For Air Conditioning

(Continued from Page 18, Column 3)

of the types of buildings surrounding the space being considered to properly estimate the effect of these buildings on outside air movements in order to determine the proper quantity of air entering space when doors are open.

Ceilings or Roof

Special care must be exercised in obtaining these data, for not only is the material a consideration but the shape greatly affects the heat transfer.

If estimating capacity for cooling and the building is located in a latitude where the sun is directly overhead at noon, then for the maximum load, the total area of the roof must be used by the estimator.

But with a pitched roof, then only a portion of the roof parallel to the sun need be used. In other words, investigate the roof. If the job is heating, good insulation will prevent the loss of heat to atmosphere.

Floors

Construction data are necessary if any additional weight is to be added. If not, material data and the temperature of the space below the floor are the only essentials.

Windows and Skylights

If a room is to be conditioned and outside air brought in, the use of windows as ventilators is definitely no longer required. For natural light, they will be required.

The investigator should carefully examine them regarding construction and note the fit of the windows in order that the estimator may make recommendations.

Sunlight energy coming directly through the windows generally constitutes a very considerable percentage of total heat gain, particularly where the walls are of good construction. On this account any effective means of reducing this solar energy without interfering with the original purpose of the windows will be of importance in broadening the application of air conditioning.

Shade

On which side can sun effect be neglected due to shade from surrounding buildings? This is very difficult data to obtain.

Adjacent Rooms

Surrounding rooms at other than normal temperature. By normal we mean for the investigator to specify the temperature of these rooms as it greatly affects this estimating data.

Other Sources of Heat In the Room

1. Maximum number of people in room for one hour. The room is being conditioned because of the people therein. Better obtain a commitment from the manager. Discuss people, outside air, etc. from blowup.

2. Obtain all details of motor characteristics and operating period.

3. Lights. These may not be lighted during the day, but a source of heat during the evening. Make note of this data.

(Concluded on Page 20, Column 3)

Omaha, Neb.

(Data Compiled by Nebraska Power Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Commercial	20	273.50	36	894.50	46	462	102	1,630
Industrial	22	651.0	0	0.0	0	0.0	22	651.0
Residential	28	69.50	42	70.0	26	83	96	222.50
Restaurant	8	103.50	6	90.50	27	291	41	485
Hotel	6	262.0	3	148.50	4	369	13	779.50
Theater	5	1,236.50	1	96.50	8	265	14	1,598
Miscellaneous	3	43.0	0	0.0	5	117	8	160
Totals	**92**	**2,639.0**	**88**	**1,300.0**	**116**	**1,587**	**296**	**5,526**

Lincoln, Neb.

(Compiled by Iowa-Nebraska Light & Power Co.)

Classification	Prior to 1937* No.	Prior to 1937* Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Public Buildings	0	0	1	1	1	1
Restaurants	5	72.75	6	51.5	11	124.5
Hotels	2	48	2	92.5	4	140.5
Funeral Homes	0	0	2	8	2	8
Offices	5	446	8	872	13	1,318
Theaters	5	307.5	0	0	5	307.5
Stores	7	610	11	70.75	18	680.75
Industrial	2	37	3	17.5	5	54.5
Residential	†	305	†	134	†	439
Totals	**26**	**1,836**	**33**	**1,237**	**59**	**3,073**

*No breakdown for years previous to 1937.
†No. of installations not given.

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"Profit-Making Meat Displays"—a new 32-page booklet tells meat merchants how to get greater profits from their displays.

The Sherer Franchise assures you of complete cooperation from the factory. Write for details about the Sherer Case and Cooler Franchise. Valuable territories still available.

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An article in demand by the quality buyer.

An Amazingly low price.

A worth-while direct factory discount.

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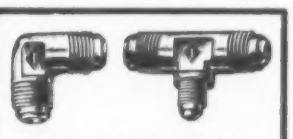
Fulton & Peoria Sts. Chicago, Illinois

A tight system calls for
FITTINGS THAT WILL STAY TIGHT

IMPERIAL S. A. E. flared fittings have been setting a mighty fast pace in the air conditioning and refrigeration field . . and their rapid acceptance by installation and service men is based on *results*. Imperial fittings are tight when the job is finished and they *stay* tight.

Write for catalog covering complete listing of sizes and prices.

IMPERIAL BRASS MFG. CO., 565 S. Racine Ave., Chicago



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Brass forged nuts, tees, elbows and crosses — will not crack. Heavier and stronger than standard—non-porous—no seepage or season cracking. Tees and elbows have flats for wrench.

IMPERIAL *Fittings* ORDER FROM YOUR JOBBER
VALVES • TOOLS • CHARGING LINES • FLOATS • DEHYDRATORS • STRAINERS

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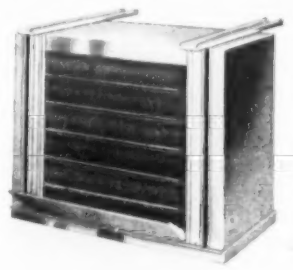

You can sell more forced draft unit coolers in 1938 than ever before—with less effort than ever before—by selling the perfected Peerless Synchro-Fan Unit Cooler.

WHY?—Because this is the unit cooler that maintains a higher box humidity than any other unit cooler on the market. It minimizes the drying out of stored product that is common where ordinary unit coolers are used—prevents air stratification during the compressor "off cycle".

HOW?—The Synchro-Fan control automatically changes the fan motor from full speed during compressor "on cycle" to any one of six optional slower speeds during "off cycle"—desired amount of moisture is introduced into the air and a gentle air movement is maintained.

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SIX NEW CASES BY WEBER — New Steps to PROFIT

The most complete line of Refrigeration Equipment — New Streamlined Beauty — Unchallenged quality. Exclusive Territories Now Available — Complete Financing Plan.

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ICE CREAM CABINET CONVERSION UNITS

Modernize old equipment . . provide much greater storage space for packaged goods . . eliminate brine leaks and attendant odors . . reduce weight and simplify installation . . require a minimum of service . . provide ideal temperatures under all conditions . . cost less to operate . . quickly and easily installed in any standard cabinet at small cost.

Write for Complete Facts
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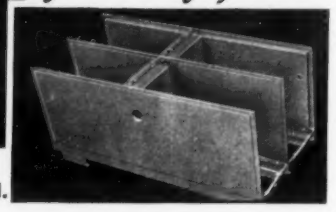
As Outstandingly Superior as the KOLD-HOLD *System of Truck Refrigeration*



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"CHIEFTAIN"
QUALITY-BUILT COMPRESSORS and CONDENSING UNITS

All bearings diamond bored. Positive lubrication of parts by newly developed process plus forced feed lubrication in all models.

Sizes 1/6, 1/5, 1/4, 1/3, 1/2, 3/4 H.P.
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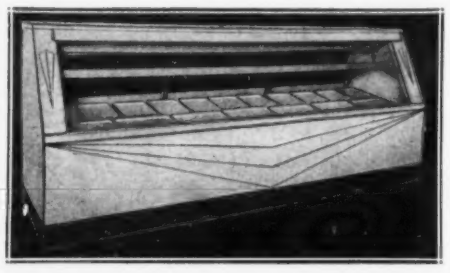
ANNOUNCING OUR NEW 1938 LINE OF COMPLETE FOOD MARKET EQUIPMENT:



Display Cases, Walk-in Coolers, Vegetable Display Cases, Reach-in Boxes for Restaurants, Hotels, and Bakers.

- Streamlined Beauty
- World's Highest Quality
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FOGEL REFRIGERATOR CO.
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More Than Two Hundred of America's Livest Jobbers Sell *Ranco*

Household Refriqerator and COMMERCIAL CONTROLS

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Write for Names of Jobbers Nearest Your City

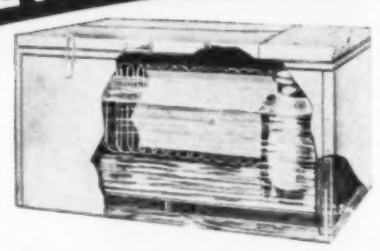
50% More Cooling Surface — VERTI-COIL

An Exclusive Feature that wins attention . . . makes sales

With approximately the same coil lengths of other milk coolers, Verti Coil Coolers have, in addition, close-fitting metal baffles which increase cooling areas as much as 50%. Because of this greater cooling surface and the natural induced circulation of water, the Verti Coil cools milk faster and more uniformly.

With coil at the back of the cabinet entirely out of the way, all four corners, three sides and bottom are left free for easy cleaning or repainting.

A few good territories are still open for distributors. Dealers will find Verti Coil and other WILSON Coolers (Zero-Flow, Cold Whirl and Dry Storage) immensely profitable items to handle.



Made in several models and in sizes from 2 to 18 cans capacity, with a price range to meet all requirements.

WRITE FOR DEALER PROPOSITION — WILSON CABINET CORP. SMYRNA DEL.

All Sources of Heat Must Be Noted by Dealer's 'Surveyor'

(*Concluded from Page 19, Column 3*)

4. Electric appliances. Obtain data from nameplates, or if unsuccessful write the manufacturers as this data may not appear on nameplates of equipment in beauty parlors.

5. Number of coffee urns. Advise if gas, steam, or electrically heated.

6. Steam table data as requested, and pressure if possible.

7. Any other source—such as steam or hot water pipes, passing through or in partitions.

8. In addition to data requested, you should learn if the heat source is on full, medium, or simmering during the peak hour on which the design is to be made.

Gas-Fired Appliances

These require a quantity of air for combustion—this quantity may be considered in the infiltration or gas combustion. If hooded, it need only be considered in the infiltration.

Exhaust or Supply Fans

These may be removed after the room is conditioned but if they are to remain, accurate nameplate data is necessary.

Electric Current Available

(A) Compressor motor, volts, phase, cycle.

(B) Conditioner, volts, phase, cycle.

In addition to the requested data it is always advisable to consult with the local power company to learn if sufficient transformer capacity is available or if a new service is necessary. Never overload the installed service and expect the purchaser to be responsible.

Heating

Better check the course of steam, hot water or hot air supply, as your equipment may not cover the guarantee unless an ample supply of the heating medium is available.

Is Cooling Water Available?

Temperature — Quantity — Cost. Because a two-inch supply is available, this does not signify a sufficient quantity as the present supply may only cover present requirements. Better check water company for complete information. Also learn if the supply to the condenser will require a meter as this is an item of cost.

South Atlantic States

Baltimore, Md.

(Compiled by Consolidated Gas, Electric Light & Power Co. of Baltimore)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Barber Shops and Beauty Parlors	5	39	5	50.0	3	23.5	13	112.5
Drug & Confec'ery Stores	19	249	4	58.0	4	57.0	27	344.0
Department Stores	13	1,428	3	381.0	10	1,352.0	26	3,161.0
Food Stores	5	33	0	0	1	16.5	6	49.5
Public Buildings	6	420	0	0.0	0	0.0	6	420.0
Hospitals	5	52	2	20.0	0	0.0	7	72.0
Industrial	11	604	2	9.50	4	131.5	17	745.0
Restaurants, Etc.	29	619	10	208.0	16	225.5	55	1,047.5
Offices	46	524	30	262.50	59	516.5	135	1,303.0
Banks & Brok'age Houses	9	489	1	20.0	2	78.5	12	587.5
Residential	23	43	26	57.0	63	71.5	112	171.5
Specialty Shops	20	233	11	175.50	22	400.0	53	808.5
Theaters	32	2,991	9	369.0	10	480.5	51	3,840.5
Miscellaneous	10	258	6	53.0	7	117.0	23	428.0
Totals	**233**	**7,982**	**109**	**1,638.5**	**201**	**3,470.0**	**543**	**13,090.5**

Hagerstown, Md. Territory

Installations on Lines of Potomac Edison System

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Apartments	2	2.0	1	0.5	3	5.5	6	8.0
Banks	2	1.0	0	0.0	0	0.0	2	1.0
Beauty Parlors	0	0.0	0	0.0	4	12.5	4	12.5
Candy and Confectionery	2	4.5	1	3.75	0	0.0	3	8.25
Clubs	2	6.5	0	0.0	0	0.0	2	6.5
Dentists' Offices	5	3.75	0	0.0	1	0.5	6	4.25
Doctors' Offices	1	0.5	2	1.5	1	0.5	4	2.5
Drug Stores	0	0.0	0	0.0	2	4.7	2	4.7
Fur Shops and Storage	1	1.5	0	0.0	1	2.2	2	3.7
Jewelry Stores	0	0.0	1	3.5	0	0.0	1	3.5
Laboratories	1	0.75	0	0.0	0	0.0	1	0.75
Miscellaneous	0	0.0	1	5.0	1	1.0	2	6.0
Offices	7	26.0	11	24.5	10	74.5	28	125.0
Radio Stations	2	1.5	0	0.0	0	0.0	2	1.5
Residences	1	1.5	3	2.5	2	2.0	6	6.0
Restaurants	2	12.0	2	27.5	0	0.0	4	39.5
Stores	2	9.0	1	3.5	4	47.0	7	59.5
Tap Rooms and Grills	2	9.0	0	0.0	2	8.4	4	17.4
Theaters	2	30.0	1	10.0	1	5.0	4	45.0
Funeral Homes	0	0.0	1	6.0	0	0.0	1	6.0
Totals	**34**	**109.5**	**25**	**88.25**	**32**	**163.8**	**91**	**361.55**

Washington, D. C.

(Data Furnished by Potomac Electric Power Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Bakeries	4	46.5	0	0.0	0	0.0	4	46.5
Banks	1	25.5	1	6.25	1	1.5	3	33.25
Barber & Beauty Shops	3	24.0	6	47.5	6	29.25	15	100.75
Bowling Alleys	2	18.0	1	16.5	†	†	3	34.5
Candy Mfg.	1	3.0	0	0.0	0	0.0	1	3.0
Churches	2	109.0	0	0.0	0	0.0	2	109.0
Clubs	0	0.0	2	9.5	3	32.25	5	41.75
Department Stores (Total & Partial)	14	1,506.25	4	1,151.25	5	372.0	23	2,657.5
Dress Shops	5	57.5	7	128.0	‡	‡	12	185.5
Drug Stores	9	205.5	10	132.5	8	79.25	27	417.25
Exhibits & Displays	6	21.25	0	0.0	*	*	6	21.25
5 & 10 Cent Stores	6	519.0	2	333.5	4	541.5	12	1,394.0
Food Storage	0	0.0	0	0.0	1	68.0	1	68.0
Funeral Parlors	2	27.25	1	5.5	6	55.5	9	88.25
Fur Shops	5	30.5	0	0.0	‡	‡	5	30.5
Grocery Stores	1	3.0	0	0.0	*	*	1	3.0
Haberdasheries	2	17.5	8	134.5	‡	‡	10	152.0
Hospitals	3	161.5	0	0.0	1	47.5	4	209.0
Hotel Dining Rooms and Cocktail Rooms	17	833.75	2	13.0	7	165.0	26	1,011.75
Hotel Guest Rooms	2	159.0	5	1,055.0	5	237.75	12	1,451.75
Interior Decorators	0	0.0	1	4.5	*	*	1	4.5
Jewelry Stores	6	50.25	4	48.5	*	*	10	98.75
Leather Goods	1	23.5	0	0.0	*	*	1	23.5
Libraries	1	28.0	0	0.0	†	†	1	28.0
Linen Stores	1	6.0	0	0.0	*	*	1	6.0
Market Spaces	3	4.5	0	0.0	†	†	3	4.5
Meat Processing	1	16.5	0	0.0	0	0.0	1	16.5
Millinery Shops	1	8.5	1	8.5	‡	‡	2	17.0
Novelty	0	0.0	1	17.0	*	*	1	17.0
Office Buildings	5	1,717.25	3	584.25	6	167.0	14	2,468.5
Opticians	1	2.0	0	0.0	†	†	1	2.0
Printing Estab.	2	90.0	0	0.0	0	0.0	2	90.0
Private Offices	40	154.75	26	105.25	52	293.75	118	553.75
Radio Studios	2	12.25	0	0.0	†	†	2	12.25
Residences	60	136.25	39	37.25	35	42.75	134	216.25
Restaurants	43	921.0	22	397.75	22	373.5	87	1,692.25
Schools	0	0.0	1	3.0	0	0.0	1	3.0
Shoe Stores	14	136.0	7	49.75	‡	‡	21	185.75
Stores, Retail Apparel	..	..	..	..	14	151.75	14	151.75
Stores, Retail, Miscel.	..	..	..	..	10	63.0	10	63.0
Theaters	11	2,563.0	8	399.5	10	764.25	29	3,726.75
Wine & Liquor Stores	1	2.0	0	0.0	*	*	1	2.0
All Others	..	..	..	..	4	146.0	4	146.0
Totals	**278**	**9,639.75**	**162**	**4,688.25**	**200**	**3,631.5**	**640**	**17,959.5**
Federal Government	58	19,551.25	6	5,563.0	18	2,820.0	82	27,934.25
Grand Totals	**336**	**29,191.0**	**168**	**10,251.25**	**218**	**6,451.5**	**722**	**45,893.75**

*1937 installations included in Stores, Retail Miscellaneous.
†1937 installations included in All Others.
‡1937 installations included in Stores, Retail Apparel.

Charleston, S. C.

(Data Furnished by South Carolina Power Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Retail Stores	1	160.5	3	166.5	1	9.25	5	336.25
Restaurants	1	13	0	0	1	9	2	22
Department Stores	0	0	0	0	1	93	1	93
Utility Co.	0	0	0	0	1	20.75	1	20.75
Residential	0	0	0	0	2	7.75	2	7.75
Hotel (Including Dining Room)	1	10	0	0	0	0	1	10
Commercial Offices	0	0	0	0	4	6	4	6
Totals	**3**	**183.5**	**3**	**166.5**	**10**	**145.75**	**16**	**495.75**

Buffalo, N. Y.

(Data Furnished by Buffalo Niagara Electric Corp.)

Application	No.	Hp.
Private Homes	*2,236	*613.30
Apartment Houses	3	160
Hospitals	1	30
Offices	21	477.50
Miscellaneous	15	344.25
Barber & Beauty Shops	1	5.00
Restaurants	30	765.00
Department Stores	5	686.75
Retail Stores	17	223.00
Theaters	13	994.00
Printing & Lithographing	1	90.00
Miscellaneous Industrial Applications	3	2,000.00
Temperature Effect	12	332.00
Industrial Efficiency	1	10.00
Total Installed	**2,359**	**6,730.80**

*Includes systems doing winter air conditioning only.

Dayton, Ohio

(Data Furnished by Dayton Power & Light Co.)

	No. of Installations	Tonnage	Hp.
Prior to 1936	61	1,444.75	1,523.04
During 1936	53	704.0	750.96
During 1937	74	1,117.0	1,381.15
Totals	**188**	**3,265.75**	**3,655.15**

Out of the 188 installations made in our territory 116 were of Frigidaire make, 24 Airtemp, 19 Carrier, and the balance of various makes.

Denver, Colo. (1937 Only)

(Data Furnished by Public Service Co. of Colorado)

Name of Concern	Hp.
Republic Drug Co.	10
Denver Athletic Club	6
Denver Athletic Club	1
Denver Post Publishing Co.	18
Denver Post Publishing Co.	3
Olinger Mortuary	10
Keable's Restaurant	3
Shirley-Savoy Hotel Dining Room	10
My Esther Beauty Parlor	3
Cheesman Realty Office	1
Smith's Beer Parlor	1
Monitor Publishing Co.	1
Colo. State Vehicle Department	7½
Republic Drug Co.	15
Frumess Jewelry Co.	7½
New Method Cleaners & Dyers	10
Neustetters Apparel Shop	50
Shirley-Savoy Convention Hall	30
Hoffman Mortuary	15
Eat-A-Bite Restaurant	3
Steinburg's Fur Co.	3
Brown Palace Hotel	25
Boggio's Cafe	10
Hopper Fur Co.	3
First National Bank	15
Total	**261**

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MERCHANT & EVANS CO.
Phila., Pa., U.S.A. Plant at Lancaster, Pa.

Atlanta, Ga. and Vicinity

(Data Furnished by Georgia Power Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Art Studios	0	0.0	0	0.0	2	4.75	2	4.75
Banks	2	7.33	3	33.16	4	58.25	9	98.75
Barber Shops	2	9.0	0	0.0	1	5.50	3	14.50
Beauty Parlors	1	18.0	2	8.1	3	27.75	6	53.85
Candy Mfg.	0	0.0	1	3.05	0	0.0	1	3.05
Clothing Stores	0	0.0	0	0.0	3	147.33	3	147.33
Department Stores	8	1,410.0	4	1,707.66	5	497.34	17	3,615.0
Dress Shops	5	68.5	3	19.88	9	88.42	21	176.8
Drug Stores	3	59.0	3	56.0	4	39.5	10	154.5
Exhibits & Displays	6	76.5	1	25.0	0	0.0	7	101.5
5 & 10 Cent Stores	0	0.0	3	445.83	8	524.0	11	969.83
Federal Government	0	0.0	0	0.0	1	63.25	1	63.25
Funeral Homes	1	3.5	1	10.0	0	0.0	2	13.5
Fur Storage	0	0.0	1	21.5	3	11.0	4	32.5
Grocery Stores	1	4.0	0	0.0	0	0.0	1	4.0
Haberdasheries	1	15.0	3	25.5	0	0.0	4	40.5
Hospitals	3	8.0	0	0.0	2	38.0	5	46.0
Hotel Dining and Cocktail Rooms	2	218.0	4	54.37	5	141.37	11	413.74
Hotel Bedrooms	2	3.0	1	22.0	0	0.0	3	25.0
Jewelry Stores	0	0.0	2	10.25	3	34.38	5	44.88
Industrial	12	269.5	2	20.0	1	30.0	15	319.5
Market Spaces	0	0.0	1	8.0	0	0.0	1	8.0
Office Buildings	0	0.0	0	0.0	3	900.21	3	900.21
Opticians	0	0.0	3	9.75	3	13.57	6	23.32
Printing Establishments	0	0.0	1	0.55	0	0.0	1	0.55
Private Offices	49	370.5	38	166.6	33	231.49	120	768.59
Radio Studios	0	0.0	1	2.5	2	24.16	3	26.66
Residences	27	92.75	14	28.4	24	55.68	65	176.83
Restaurants	23	449.0	5	69.0	2	21.3	30	539.3
Shoe Stores	2	20.0	3	27.25	4	14.66	9	61.91
Theaters	9	1,915.0	4	152.75	4	137.0	17	2,204.75
Wine & Liquor Stores	1	15.0	0	0.0	0	0.0	1	15.0
Totals	**160**	**5,031.58**	**104**	**2,927.1**	**129**	**3,108.91**	**393**	**11,067.59**

Savannah, Ga.

(Data Furnished by Savannah Electric & Power Co.)

Classification	Prior to 1937 No.	Prior to 1937 Hp.	Prior to 1937 Ref. Ton	During 1937 No.	During 1937 Hp.	During 1937 Ref. Ton	Total No.	Total Hp.	Total Ref. Ton
Banks	1	56.0	50.0	..	...	...	1	56.0	50.0
Barber Shop	1	3.5	3.0	..	...	...	1	3.5	3.0
Hotel Tap Rooms	1	11.5	10.0	..	...	...	1	11.5	10.0
Night Clubs	2	63.0	55.0	..	...	...	2	63.0	55.0
Offices	3	55.25	45.5	1	2.75	2.5	4	58.0	48.0
Residences	2	7.0	5.75	4	16.0	14.0	6	23.0	19.75
Restaurants	2	38.0	35.0	2	49.5	40.0	4	87.5	75.0
Stores	3	26.5	22.5	5	75.0	63.0	8	101.5	85.5
Theaters	1	188.5	150.0	..	...	...	1	188.5	150.0
Totals	**16**	**449.25**	**376.25**	**12**	**143.25**	**119.50**	**28**	**592.5**	**496.25**

Richmond, Va.

(Compiled by Virginia Electric and Power Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Restaurants	10	186.5	6	118.5	4	31	20	336.0
Theaters	16	1,730	5	194.5	8	311	24	616.0
Stores	26	2,019.5	20	690.8	13	122	59	2,832.3
Offices	19	81.8	13	63.3	19	99	51	244.1
Beauty Parlors	2	16	1	6	4	23	7	45
Funeral Homes	3	60	1	6	1	10	5	76
Hotels	0	0	0	0	0	0	0	0
Factories	6	650	0	0	1	104	7	754
Churches	0	0	1	6	0	0	1	6
Banks	1	60	0	0	1	9	2	69
Residences	23	50.5	9	17.5	9	13	41	81.0
Railroad Coaches	0	0	1	50	0	0	1	50
Hospitals	5	21	1	15	1	7	7	43
Miscellaneous	2	133.5	1	5.5	3	67	6	206.0
Totals	**113**	**5,008.8**	**59**	**1,173.1**	**64**	**796**	**236**	**6,977.9**

Jacksonville, Fla. Area

(Data Furnished by Electric Production & Water Dept., City of Jacksonville)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Banks	0	0.0	0	0.0	2	80.0	2	80.0
Barber & Beauty Shops	0	0.0	2	6.0	2	6.0	4	12.0
Hospitals	0	0.0	0	0.0	1	10.0	1	10.0
Hotels	2	21.0	2	21.0	4	705.50	8	747.5
Industrial	0	0.0	2	55.0	0	0.0	2	55.0
Offices	2	13.0	14	25.0	13	70.0	29	108.0
Residences	1	3.0	8	26.0	1	1.0	10	30.0
Restaurants & Bars	4	45.0	5	62.0	11	99.0	20	206.0
Stores	5	168.0	5	96.0	9	311.50	19	585.5
Telephone Co.	2	18.0	0	0.0	0	0.0	2	18.0
Theaters	1	200.0	1	100.0	0	0.0	2	300.0
Court House	1	103.0	0	0.0	0	0.0	1	103.0
Markets	1	10.0	0	0.0	0	0.0	1	10.0
Library	1	5.0	0	0.0	0	0.0	1	5.0
Funeral Homes	2	21.0	2	21.0	0	0.0	4	42.0
Totals	**22**	**607.0**	**41**	**412.0**	**41**	**1,203.0**	**104**	**2,222.0**

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East South Central States

Birmingham, Ala.

(Data Furnished by Birmingham Electric Co.)

Classification	Prior to 1936 No.	Prior to 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Offices	13	53.0	16	128.3	13	27.0	42	208.3
Residences	8	42.6	10	16.2	3	4.83	21	63.63
Restaurants & Drug Stores	6	165.0	5	183.9	8	177.82	19	526.72
Retail Stores	11	924.0	10	70.2	12	139.91	33	1,134.11
Theaters	4	595.0	3	61.5	3	182.5	10	839.0
Auto Showrooms	1	13.0	0	0.0	0	0.0	1	13.0
Auto Service Stations	1	1.0	0	0.0	0	0.0	1	1.0
Radio Studios	1	1.0	0	0.0	1	0.5	2	1.5
Industrial	1	2.5	0	0.0	3	39.13	4	41.63
Standby Railroad Cars	5	50.0	0	0.0	0	0.0	5	50.0
Barber Shops & Beauty Parlors	0	0.0	1	3.3	4	23.58	5	26.88
Department Stores	0	0.0	4	333.5	3	915.7	7	1,249.2
Funeral Homes	0	0.0	0	0.0	3	31.75	3	31.75
Dentists' Offices	0	0.0	0	0.0	1	3.33	1	3.33
Court Room	0	0.0	0	0.0	1	28.5	1	28.5
Laboratories	0	0.0	0	0.0	1	3.25	1	3.25
Groceries & Delicatessens	0	0.0	0	0.0	2	16.0	2	16.0
Miscellaneous	0	0.0	3	124.0	0	0.0	3	124.0
Totals	**60**	**1,937.1**	**52**	**920.9**	**58**	**1,593.8**	**161**	**4,371.8**

Chattanooga-Nashville, Tenn. Areas

(Data Furnished by The Tennessee Elec. Power Co.)

Classification	Prior to 1936 No.	Prior to 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Beauty Parlors	2	9	1	3.25	1	2	4	14.25
Department Stores	1	26.50	7	528.75	2	630	10	1,185.25
Retail Stores	16	296.85	9	105.10	7	108.75	32	510.70
Hotels	0	0	3	32.50	3	76	6	108.50
Offices	23	88.55	10	62.90	15	51.84	48	203.29
Residences	18	28.60	13	16.08	7	6.60	38	51.28
Restaurants	11	188.75	6	64.70	3	44	20	297.45
Theaters	5	853	2	77.50	2	86	9	1,016.50
Banks	0	0	1	40	1	27	2	67
Hospitals	1	1.05	1	2.50	0	0	2	3.55
Clubs	1	28	1	12.50	1	12	3	52.50
Laundry	2	2	1	1	0	0	3	3
Broadcasting Studios	0	0	2	18.50	0	0	2	18.50
Record Vaults	1	1.50	0	0	0	0	1	1.50
Apartments	1	27	0	0	0	0	1	27
Orphanages	1	5.50	0	0	0	0	1	5.50
Industrial	1	1.50	0	0	0	0	1	1.50
Candy Mfg.	4	58.25	0	0	0	0	4	58.25
Exhibits and Displays	1	30	0	0	0	0	1	30
Totals	**89**	**1,646.05**	**57**	**965.28**	**42**	**1,044.19**	**188**	**3,655.52**

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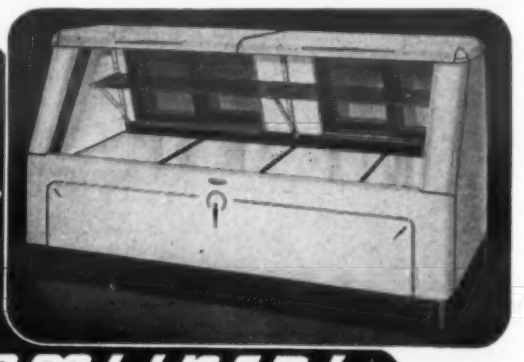
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Jackson, Greenville, Vicksburg, Miss. Area

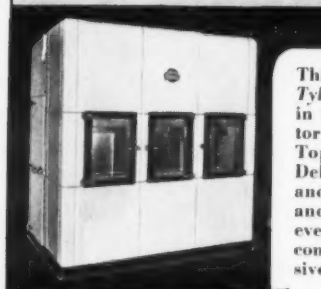
(Data Compiled by Mississippi Power & Light Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Hospitals	0	0	3	6.37	2	4.5	5	10.87
Physicians' Offices	0	0	6	3.62	5	5.0	11	8.62
Dairies	0	0	1	2	0	0.0	1	2
Restaurants	2	18	4	74	4	46.5	10	138.5
Residences	11	10.50	11	10.5	16	25.0	38	46.0
Pressing Shops	0	0	1	3	0	0.0	1	3.0
Hotels	0	0	4	5	1	.75	5	5.75
Laboratories	0	0	1	.62	0	0	1	.62
Funeral Homes	0	0	1	3	0	0	1	3
Banks	1	36	1	1	0	0	2	37
Miscellaneous Commercial	7	10.25	7	14	11	56	25	80.25
Retail Stores	1	1	1	.5	7	66.75	9	68.25
Night Clubs	0	0	1	3	0	0	1	3
Ice Cream Mfg.	0	0	1	1	0	0	1	1
Drug Stores	0	0	1	13	1	20	2	33
Tourist Camps	1	10	1	16	0	0	2	26
Beauty Parlors	2	9	0	0	0	0	2	9
Offices	1	3	0	0	0	0	1	3
Cleaning Establishments	1	1	0	0	0	0	1	1
Garages	3	3.25	0	0	0	0	3	3.25
Utilities Offices	2	1	0	0	1	4	3	5
U. S. Government Fleet	1	2	0	0	0	0	1	2
Bakeries	1	3	0	0	0	0	1	3
Laundries	1	5	0	0	1	.75	2	5.75
Theaters	0	0	0	0	1	50	1	50
Totals	**35**	**113**	**45**	**156.61**	**50**	**279.25**	**130**	**548.86**

TYLER

TYLER Treasure Island Sales Fixtures

WELDED STEEL *Refrigerators*



This year, more than ever, the *Tyler* line is the popular line in the commercial refrigerator field. Now complete with Top Display, Double Duty, Delicatessen, Reach-In cases and Walk-In coolers. Sizes and types to take care of every prospect. Welded steel construction and other exclusive features make TYLER

THE FAST SELLING LINE

Tyler's quantity production methods have made possible a new standard of values that gives you unbeatable sales ammunition. Write now for newest literature and dealer details.

TYLER FIXTURE CORP. Dept. E, NILES, MICH.

NEW YORK OFFICE: 801 W. 26TH ST. CHICAGO OFFICE: 1863 W. OGDEN AVE.

New A.P. 44

Air Conditioned Model

OWN YOUR OWN BUSINESS IN 1938

THRU' THE H. & H. "38" PLAN

Are You a REAL Commercial Refrigeration or Fixture Salesman?
The H. & H. '38 Direct Dealer Plan Will Put You In Your Own Business.

MAKE LARGE DEALER PROFITS, (not small commissions)

Our '38 Plan Offers:—

1. Direct factory-to-dealer exclusive franchise—floor models—sales kits—descriptive literature THAT SELLS.
2. Complete line—Dulux and porcelain display cases, streamlined and conventional models—market coolers—grocery boxes. Over 50 different models and sizes—make regular dealer profits.
3. Free—**forceful** mail advertising—DIRECT TO EVERY PROSPECT IN YOUR TERRITORY.
4. To finance the H. & H. products and any nationally known compressor of your selection, both on the same contract with regular down payment and terms.
5. We discount your contracts—converting them into dollars—**IMMEDIATE PROFITS TO YOU.**

Valuable Territories Now Available—ACT NOW!

WRITE, WIRE COLLECT giving us all information; experience, sales ability and territory YOU NOW COVER.

HOLCOMB & HOKE MFG. CO.
1445 E. Van Buren St. Indianapolis, Indiana

The 1938 KOCH LINE is READY

Distributors Will Be Interested Write Koch Now For Proposition

The 1938 Econ-O-Case is the price leader in a complete new line of display cases. Single, double, and triple duty models to meet every need . . . and every Koch Case is insulated with pure corkboard.

KOCH
No. Kansas City, Mo.

Louisville, Ky.

(Data Compiled by Louisville Gas & Electric Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Theaters	9	671.0	0	0.0	5	162.5	14	833.5
Industrial	5	326.5	8	111.5	0	0.0	13	438.0
Stores	21	475.75	16	233.78	22	649.66	59	1,359.14
Restaurants	7	124.0	0	0.0	5	83.99	12	207.99
Offices	7	14.0	11	45.1	31	297.72	49	356.82
Residences	15	34.0	1	3.33	16	33.12	32	70.45
Photo Engravers	1	15.0	0	0.0	0	0.0	1	15.0
Hotels	1	5.5	2	13.0	1	7.5	4	26.0
Hotel Restaurants	5	77.5	0	0.0	0	0.0	5	77.5
Tap Rooms	1	5.0	0	0.0	0	0.0	1	5.0
Radio Studios	1	6.0	0	0.0	0	0.0	1	6.0
Beauty Parlors	0	0.0	0	0.0	1	9.25	1	9.25
Miscellaneous	12	290.0	2	123.5	8	251.8	22	665.3
Totals	**85**	**2,044.25**	**40**	**530.16**	**89**	**1,495.54**	**214**	**4,069.95**

West South Central States

New Orleans, La.

(Data Furnished by New Orleans Public Service, Inc.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Airports	1	105.0	0	0.0	0	0.0	1	105.0
Beauty Shops	1	0.5	1	7.75	0	0.0	2	8.25
Broker Rooms	2	15.75	1	48.13	0	0.0	3	63.88
Cake Manufacturers	1	12.0	0	0.0	0	0.0	1	12.0
Candy Manufacturers	2	83.5	0	0.0	1	20.0	3	103.50
Children's Wear	1	5.5	0	0.0	0	0.0	1	5.5
Cigar Manufacturers	2	2.0	0	0.0	0	0.0	2	2.0
Clothing Stores	4	73.0	3	306.0	1	30.0	8	409.0
Colleges	2	4.25	0	0.0	0	0.0	2	4.25
Court Rooms	1	55.0	0	0.0	0	0.0	1	55.0
Department Stores	4	1,813.0	3	449.3	2	370.0	9	2,632.30
Drug Stores	1	1.5	3	83.32	5	60.25	9	145.07
Funeral Homes	1	25.0	1	30.3	0	0.0	2	55.3
General Offices	11	126.35	5	53.5	13	163.25	29	343.10
Hospitals	2	14.5	1	25.0	1	1.5	4	41.0
Hotels	10	621.25	3	111.0	2	59.5	15	791.75
Laboratories	2	43.5	0	0.0	0	0.0	2	43.5
Night Clubs	1	24.0	1	51.0	1	10.75	3	85.75
Office Buildings	3	1,869.0	0	0.0	0	0.0	3	1,869.0
Pecan Dryers	2	1.5	0	0.0	0	0.0	2	1.5
Printing Establishments	2	4.9	0	0.0	2	30.75	4	35.65
Private Offices	16	18.5	22	17.2	37	85.75	75	121.45
Radio Studios	2	26.5	0	0.0	0	0.0	2	26.5
Residences	50	171.78	28	45.29	42	44.5	120	261.57
Restaurants	6	278.16	5	59.84	7	52.0	18	390.0
Seed Storage	1	16.0	0	0.0	0	0.0	1	16.0
Shoe Stores	6	74.5	2	20.75	1	9.0	9	104.25
Stores (5 & 10)	0	0.0	1	117.0	1	70.0	2	187.0
Sugar Storage	1	1.0	0	0.0	0	0.0	1	1.0
Telephone Exchanges	2	6.0	0	0.0	7	71.5	9	77.5
Theaters	4	1,442.0	2	109.0	3	147.5	9	1,698.5
Utilities	1	4.5	0	0.0	0	0.0	1	4.5
Women's Apparel	8	226.0	4	42.5	5	24.5	17	293.0
Railroad Service for Cars	5	380.0	0	0.0	0	0.0	5	380.0
Total	**158**	**7,545.94**	**86**	**1,576.88**	**131**	**1,250.75**	**375**	**10,368.57**

Beaumont, Texas

(Compiled by Gulf States Utilities Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Residences	3	35.5	2	41.5	1	2.66	6	79.66
Restaurants	3	91.5	3	54	0	0	6	145.5
Offices	1	8	0	0	1	4	2	12
Theaters	2	261	2	193	0	0	4	454
Dry Cleaners	1	8	0	0	0	0	1	8
Retail Stores	1	8	2	32	7	112.9	10	152.9
Air Conditioning Dealer	1	14	0	0	0	0	1	14
Department Stores	1	29	0	0	0	0	1	29
Federal Court Room	1	12	0	0	0	0	1	12
Offices & Sales Room	2	105	0	0	1	13.5	3	118.5
Barber Shop	1	5	0	0	0	0	1	5
Bank	0	0	1	85	1	18.5	2	103.5
County Court House	0	0	1	118	0	0	1	118
City Auditorium	0	0	1	263	0	0	1	263
Drug Stores	0	0	0	0	3	75.3	3	75.3
Hotels	0	0	0	0	2	111.33	2	111.33
Night Clubs	0	0	0	0	1	25	1	25
Totals	**17**	**577**	**12**	**786.5**	**17**	**363.2**	**46**	**1,726.7**

El Paso, Texas

(Data Furnished by El Paso Electric Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Utility Office	1	22.5	0	0	1	17.5	2	40.0
Restaurants	2	27.0	1	5	0	0	3	32.0
Clubs	1	32.0	0	0	1	10.0	2	42.0
Theaters	1	200.0	0	0	1	75.0	2	275.0
Banks	1	5.0	0	0	0	0	1	5.0
Hotels	1	77.0	1	11.0	0	0	2	88.0
Railroad	1	50.0	0	0	0	0	1	50.0
Homes	4	6.0	2	4.0	0	0	6	10.0
Cleaners	0	0	1	4.0	0	0	1	4.0
Hospital	0	0	1	25.0	0	0	1	25.0
Office	0	0	1	1.5	0	0	1	1.5
Drug Stores	0	0	2	35.0	0	0	2	35.0
Shoe Store	0	0	0	0	1	9.0	1	9.0
Store, Retail	0	0	0	0	1	67.0	1	67.0
Totals	**12**	**419.5**	**9**	**85.5**	**5**	**178.5**	**26**	**683.5**

San Antonio, Texas

(Compiled by San Antonio Public Service Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Theaters & Auditoriums	10	2,663	0	0	0	0	10	2,663
Department Stores	8	359.75	7	682.85	15	473.75	30	1,516.35
Clubs, Etc.	2	17.5	5	59.8	1	6	8	83.30
Restaurants, Coffee Shops, and Cafeterias	7	695	2	19.1	6	83	15	797.1
Office Buildings	3	707	1	17	1	241	5	965
Individual Offices	13	28.5	7	10.25	14	47.45	34	86.2
Broadcasting Studios	1	6	0	0	0	0	1	6
Testing Laboratories	2	67.25	0	0	0	0	2	67.25
Banks	2	327	0	0	0	0	2	327
Beauty Parlors	3	27	0	0	0	0	3	27
Brokers	1	28	0	0	0	0	1	28
Hospitals	1	7	2	15	0	0	3	22
Hotels	1	532	1	9.6	2	875	4	1,416.60
Funeral Homes	1	13	0	0	2	25	3	38
Drug Stores	1	11	1	18	1	10	3	39
Residences	23	37	12	24.5	12	28.25	47	89.75
Post Office	0	0	0	0	1	535	1	535
Totals	**79**	**5,526.0**	**38**	**856.1**	**55**	**2,324.45**	**172**	**8,706.55**

Grained Panels Used to Solve Problem of Exposed Ducts

PATERSON, N. J.—A solution to the difficult problem of exposed ductwork was found in the use of wood grained panel designs matching the fixtures in the Stenchever Store, New Jersey's largest shoe store, during the installation of Carrier air-cooling equipment.

Because the first floor of the building is on two levels, certain difficulties were encountered not found in the ordinary small store. Because of the difference in ceiling heights velocities had to be calculated very carefully, and directional-flow diffusing grilles were used.

The shoe stock was kept in special fixture booths, making it necessary to run ductwork through these "shops within shops." This metal work had to match the booths in design and alignment.

Return air from the second floor was carried through a series of inclosed beams, leading to a return duct connected with the Carrier Weathermaker in the basement.

Max Bodner, owner of the store, later installed a similar system in his Hackensack store.

Meiter Heads Worthington Office in Buffalo

BUFFALO—W. A. Meiter has been appointed manager of the Buffalo sales office of Worthington Pump and Machinery Corp., succeeding C. C. Scott, who will devote his time to special work in the Buffalo district.

Mr. Meiter has been a member of the Worthington organization since his graduation from Ohio State university in 1927.

How to Get RELIABLE Temperature Records

● You know how important temperature records are for test or installation work. But do you know about Practical recording thermometers? Endorsed by servicemen and engineers. Used in air conditioning, refrigeration, and heating. Unusually low priced. Sturdily built. Guaranteed. Give dependable records. Completely portable and self-contained. 7½ in. high. Get complete information.

15 DAY TRIAL: Act at once! Ask your jobber; or write to us for prices, description, guarantee, and 15 day trial terms. Ask for the "1938 OFFER." Address: Practical Instrument Co., 2717-M N. Ashland, Chicago.

PRACTICAL Recording Thermometer

McQUAY

EFFICIENT PERFORMANCE FOR ALL PHASES OF AIR CONDITIONING APPLICATIONS

Direct Expansion Cooling
Water Cooling and Heating
Steam Heating

McQUAY Coils are a VERY Vital part of any Air Conditioning Installation. Built in a wide range of standard sizes and capacities. Easy to select and install. Durable, Compact, Efficient.

Write today for descriptive bulletin.

WRITE for New Catalogs on McQUAY Unit Coolers, Comfort Coolers, Cabinet Concealed Radiation, Refrigeration Coils, Ice Cube Makers, Air Conditioning Coils, Blast Coils, Combination Heating and Cooling Units, Suspended and Floor Type Blower Coolers, Cabinet Floor Type Room Coolers, Etc.

McQUAY INC.
MINNEAPOLIS MINNESOTA.

CLASSIFIED ADVERTISING

RATES: Fifty words or less in 6-point light-face type only, one insertion, $2.00, additional words four cents each. Three insertions $5.00, additional words ten cents each.

PAYMENT in advance is required for advertising in this column.

REPLIES to advertisements with Box No. should be addressed to Air Conditioning and Refrigeration News, 5229 Cass Ave., Detroit, Mich.

POSITIONS AVAILABLE

YOUNG ENGINEER, recently graduated, to train in engineering department and laboratory of well known Midwest refrigeration and air conditioning coil and condenser manufacturer preparatory to position as field sales engineer. Starting salary $30 a week. Please state age and scholastic training. Box 1011, Air Conditioning & Refrigeration News.

POSITIONS WANTED

AIR CONDITIONING Engineer—M.E. Age 33. Experience: Five years designing, estimating and selling air distribution, heating, ventilating and sheet metal construction. Three years designing, estimating, selling, supervising installations of year-'round air conditioning units and central systems with refrigeration. Capable of organizing and managing air conditioning department. Box 1012, Air Conditioning & Refrigeration News.

TOP-NOTCH ADVERTISING and sales promotion man now available. Ten years' experience, including one leading oil burner company and one major electric refrigerator company—covering all phases of sales planning, dealer merchandising, copy writing, literature production and appliance selling. Age 32—married—educated—good appearance. Looking for congenial connection in Middlewest where ability, experience and energy will mean a real contribution. Box 1013, Air Conditioning & Refrigeration News.

REFRIGERATION and Air Conditioning Engineer located with prominent eastern manufacturer desires change. Four years' experience in developing and testing air conditioning and refrigerating low sides, recommending equipment for various applications in the field, and factory engineering. Address replies to Box 1014, Air Conditioning & Refrigeration News.

SERVICE MAN, employed, desires position with wide-awake refrigerator or appliance company. Four years' experience commercial and domestic refrigeration; other electrical and gas appliances. Three years' engineering University Illinois; refrigeration course Utilities Engineering Institute. Factory training Norge and Curtis. Age 28, married. Excellent references. Box 1015, Air Conditioning & Refrigeration News.

AIR-BRUSH-SPRAY finisher, experienced in finishing refrigerators, ice-cream cabinets, water coolers, air conditioning equipment, wood and metal products. Have knowledge of all modern finishing methods. Capable of taking charge. Age 35 years. ROBERT F. DELLINGER, 820 West 17th St., Los Angeles, California.

REPAIR SERVICE

DOMESTIC CONTROLS repaired. Ranco pencil types $1.75. General Electric, Cutler-Hammer, Tag, Penn, Ranco box types $2.00. Bishop Babcock, Majestic, Penn magnetic types $2.50. Mayson and Detroit valves $1.15. Thermostatic expansion valves $3.50. All calibrated to factory specifications. UNITED SPEEDOMETER REPAIR COMPANY, 436 West 57th Street, New York City.

PATENTS

HAVE YOUR patent work done by a specialist. I have had more than 25 years' experience in refrigeration engineering. Prompt searches and reports. Reasonable fees. H. R. VAN DEVENTER (ASRE), Patent Attorney, 342 Madison Avenue, New York City.

FINANCIER WANTED

to form company for marketing newly invented fire and weatherproof building system. Makes air conditioning of houses and other structures an economical possibility for nearly every purse. Patents pending. Box 1010, Air Conditioning & Refrigeration News.

ALCO

SAVE 20-40%

Write for details of Alco's new small Capacity "TK" Thermo Valve

Alco Valve Co., Inc. - St. Louis, Mo.

VIRGINIA SMELTING Company

WEST NORFOLK, VIRGINIA

131 STATE ST. BOSTON-76 BEAVER ST. N.Y.

EXTRA DRY

ESOTOO

LIQUID SULPHUR DIOXIDE

V-METH-L

VIRGINIA METHYL CHLORIDE

Tulsa, Okla.

(Data Furnished by Public Service Co. of Oklahoma)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Office Buildings	0	0	1	175	11	5,170	12	5,345
Banks	3	559	0	0	0	0	3	559
Clubs	1	50	1	55	0	0	2	105
Doctors and Dentists	3	9	0	0	0	0	3	9
Hospital Ward	1	1½	0	0	0	0	1	1½
Offices	14	82	3	24	10	315	27	421
Restaurants	5	128	3	27	4	57	12	212
Stores—Dept. and Retail	8	366	2	40	8	438	18	844
Theaters	4	726	0	0	0	0	4	726
Billiard and Pool Rooms	0	0	0	0	2	75	2	75
Laboratories	0	0	0	0	2	255	2	255
Hotels	0	0	0	0	4	352	4	352
Barber and Beauty Shops	0	0	0	0	2	23	2	23
Residences	30	114	23	72	58	128	111	314
Totals	**69**	**2,035½**	**33**	**393**	**101**	**6,813**	**203**	**9,241½**

Oklahoma Gas & Electric Territory

(Data Furnished by Oklahoma Gas & Electric Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	First 6 During 1937 No.	First 6 During 1937 Hp.	Total No.	Total Hp.
Apartment Houses	0	0.0	1	5.75	0	0.0	1	5.75
Apartments	2	3.1	3	6.75	2	5	7	14.85
Private Homes	59	122.62	66	107.50	91	212	216	442.12
Banks	2	81.5	2	38.75	1	10.0	5	130.25
Billiard Parlors	0	0	0	0	1	13	1	13
Churches & Auditoriums	0	0	0	0	1	20	1	20
Film Exchanges	0	0	0	0	1	9	1	9
Food Storage	0	0	0	0	1	2	1	2
Doctors' & Dentists' Offices	1	2.1	10	16.75	7	23	18	41.85
Funeral Parlors	2	25.2	1	8.5	0	0.0	3	33.7
Hospitals & Clinics	3	9.92	3	20.5	2	20	8	50.42
Offices	19	60.24	37	260.0	32	147	88	467.24
Studios, Broadcasting	2	39.71	2	1.25	0	0.0	4	40.96
Utility Company Offices	8	87.55	2	16.25	8	507	18	610.80
Barber Shops	1	3.1	1	6.0	2	10	4	19.1
Hotel Guest Rooms	0	0.0	0	0.0	5	400	5	400
Hotel Coffee Shops and Dining Rooms	1	187.5	1	7.0	1	13.0	3	207.5
Office Buildings	2	454.5	*	121.0	1	35	3	610.5
Restaurants	6	136.2	7	92.25	6	58	19	286.45
Department Stores	2	112.5	1	36.0	3	218	6	366.5
Retail Stores	18	148.38	18	373.0	22	281	58	738.38
Theaters	3	916.50	0	0.0	1	85.0	4	1,001.5
Auditoriums	1	13.5	1	50.0	0	0.0	2	63.5
Civic Buildings	0	0.0	1	350.0	0	0.0	1	350.0
Schools	0	0.0	1	7.5	1	18.0	2	25.5
Misc. Commercial	1	3.53	1	1.75	0	0.0	2	5.28
Bakeries	1	11.5	0	0.0	0	0.0	1	11.5
Fur Storage	1	5.2	0	0.0	5	24	6	29.2
Misc. Industrial	2	12.55	1	3.5	0	0.0	3	16.05
Total	**137**	**2,436.90**	**160**	**1,530.00**	**194**	**2,110**	**491**	**6,076.9**

*Addition to present system.

Pacific Coast States

Los Angeles, Calif.

(Data Furnished by Southern California Edison Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Citrus Packing Industry	41	1,579	8	347	16	771	65	2,697
Restaurants	3	11	6	60	26	91	35	162
Banks	2	6	3	15	8	66	13	87
Doctors and Dentists	5	9	0	0	8	41	13	50
Theaters	1	70	4	146	7	168	12	384
Stores	5	16	3	15	19	144	27	175
Motion Picture Studios	2	200	0	0	2	1,025	4	1,225
Drug Stores	0	0	0	0	7	78	7	78
Hospitals	3	8	0	0	5	26	8	34
Office Buildings	9	39	0	0	8	137	17	176
Public Utility Buildings	0	0	0	0	7	54	7	54
Hotels	0	0	0	0	6	54	6	54
Mortuaries	0	0	0	0	3	25	3	25
Residential	6	15	5	10	34	65	45	90
Miscellaneous Commercial	1	43	1	7	28	106	30	156
Miscellaneous Industrial	2	18	1	70	8	75	11	163
Desert Coolers	0	0	0	0	88	34	88	34
Totals	**80**	**2,014**	**31**	**670**	**280**	**2,960**	**391**	**5,644**

Fresno, Calif. Area

(Compiled by San Joaquin Light & Power Corp.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total to Total No.	Total to Total Hp.
Apartment Houses	1	12.00	0	0.0	0	0.0	1	12.00
Banks	1	88.00	0	0.0	0	0.0	1	88.00
Funeral Parlors	1	8.50	2	8.0	2	5.05	5	21.55
Offices and Office Bldgs.	19	582.20	27	554.27	39	342.25	85	1,478.72
Residences	31	73.75	27	69.75	43	65.56	101	209.06
Restaurants	8	71.25	8	94.44	7	25.21	23	190.90
Retail Stores	5	18.95	13	60.81	20	126.39	38	206.15
Beauty Parlors	1	1.75	0	0.0	0	0.0	1	1.75
Hospitals	2	2.87	5	43.80	1	2.25	8	48.92
Recreation Centers	1	24.09	0	0.0	6	28.01	7	52.01
Theaters	4	141.50	3	180.50	10	123.24	17	445.24
Hotels	0	0.0	2	86.00	4	268.10	6	354.10
Miscellaneous	0	0.0	0	0.0	14	139.27	14	139.27
Totals	**74**	**1,029.75**	**87**	**1,097.57**	**146**	**1,125.33**	**307**	**3,347.67**

Portland, Oregon

(Data Furnished by Northwestern Electric Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Banks	2	.8	0	0	0	0	2	.8
Doctors' & Dentists' Offices	3	2.3	0	0	0	0	3	2.3
Offices	1	.7	6	2.25	1	3	8	5.59
Studios, Broadcasting	1	7.7	0	0	0	0	1	7.7
Restaurants	24	34.9	15	6.6	13	9.75	52	51.25
Stores, Retail	6	2.9	7	19	2	3.33	15	25.23
Theaters	2	16.0	0	0	0	0	2	16.0
Churches	1	.1	0	0	0	0	1	.1
Dairy Products	2	18.5	1	7	0	0	3	25.5
Paper Manufacturer	0	0	1	.25	0	0	1	.25
Furriers	0	0	0	0	1	2.5	1	2.5
Hotels	0	0	0	0	2	26.75	2	26.75
Miscellaneous	2	1.9	3	11.6	6	8	11	26.9
Totals	**44**	**85.80**	**33**	**46.10**	**25**	**53.33**	**102**	**185.23**

Seattle, Wash.

(Data Furnished by Puget Sound Power & Light Co.)

Classification	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Offices, Private	11	17	8	59	19	76
Hospitals	1	6	0	0	1	6
Bakeries	0	0	3	13	3	13
Stores	0	0	4	26	4	26
Beauty Shop	0	0	2	10	2	10
Totals	**12**	**23**	**17**	**108**	**29**	**131**

Spokane, Wash.

(Data Furnished by The Washington Water Power Co.)

Classification	Prior To 1936 No.	Prior To 1936 Hp.	During 1936 No.	During 1936 Hp.	During 1937 No.	During 1937 Hp.	Total No.	Total Hp.
Banks	1	22*	2	27*	0	0	3	49*
Beauty Shops	0	0	0	0	1	3	1	3
Doctors' Offices	2	3	0	0	0	0	2	3
Offices	6	8	1	5.5	4	21	11	34.5
Utility Co. Offices	3	25	0	0	2	240	5	265
Hotel Coffee Shops	1	3	1	5.5	0	0	2	8.5
Restaurants	2	23	2	12	2	15	6	50
Retail Stores	1	133	1	13	1	3	3	149
Theaters	1	141	0	0	0	0	1	141
Fruit Packing	96	1,950	0	0	7	165	103	2,115
Residential	2	5	1	1	0	0	3	6
Totals	**115**	**2,313**	**8**	**64.0**	**17**	**447**	**140**	**2,824**

*Same bank—three floors.

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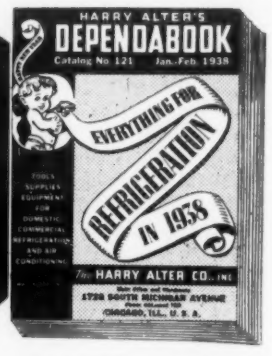

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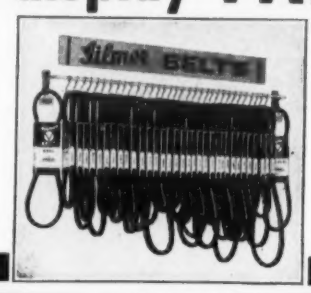
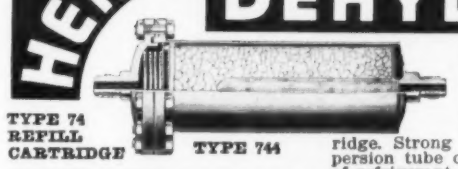


HENRY CARTRIDGE DEHYDRATOR



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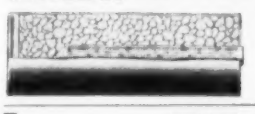

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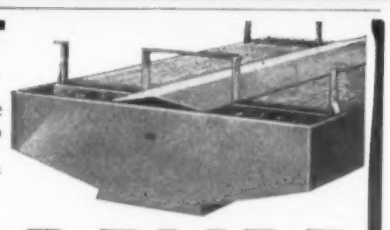

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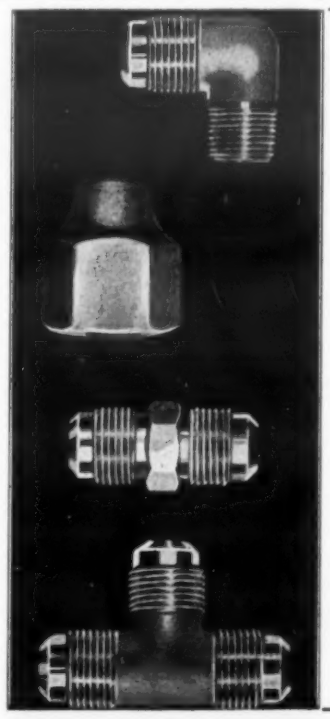

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